Journal

of the

Royal Naval Medical Service.

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Articles

CUM GRANO SALIS

BY

Surgeon Commander J W L CROSFILL, R.N.

Name of patient	CÆSAR Julius
Age	
Rank or rating	Imperator elect S P Q R
Religion	Jupiter Conformist
Next of Kin	Wife CALPURNIA c/o The Capitol Rome
Date and time of admission	14th Kalends of March Anno minus 44
Date of discharge	Ides of March Anno minus 44
Diagnosis	Memere's Syndrome C S O M. Multiple Injuries (not on duty)
Temperature on admission	No
Pulse on admission	Yes
Whether hurt certificate granted	Not yet

History of Present Complaint

Kal Mart This officer who was admitted without any accompanying medical documents was proceeding through the market place on State duty He was apparently sober at the time His previous affect had been normal but, whilst in the market place he was observed to be somewhat peculiar and hesitant in his manner thrice refusing though reluctantly the imperial crown The reason for this conduct is not definitely known but he had a short while previously admitted some worry about his wife's health

(1) Forget not in your speed Antonius
To touch Calpurnia for our elders say
The barren touched in this holy chase
Shake off their sterile curse '

When offered the coronet it was noticed by compatriots [illegible] that he would fain have it though he put it by with the back of his hand (2) At this the rabblement hooted and clapped their chapped hands [illegible] were not chapped He endured the winter's cold well)

On the crowd throwing up their sweaty nightcaps and [illegible] stinking breath (3) Cæsar appeared to choke for he swooned and fell down at it He then foamed at the mouth and was speechless The attack was witnessed by Casca R A who states that this was not a typical epileptic attack although Brutus considered it to be so

Casca No Cæsar hath it not but you (4) and I
And honest Casca we have the falling sickness

Neither of these observers report any convulsive phenomena On recovering consciousness Cæsar then opened his doublet and offered his throat to be cut This apparent post epileptic confusional state lasted a few moments only as re orientation was quickly established upon which the patient attributed his actions of which he has no subsequent memory to his infirmity He was admitted to hospital direct but having been seen by a Service medical officer

On Admission —Orientated and annoyed No superficial injuries Tongue not bitten Only spitting blood

Previous history Has no memory of childish complaints except that he was born under the Lex Cæsare Deafness of the left ear due to long standing suppurative otitis media

Fever when in Spain accompanied by rigors Recurrent fever of tertian periodicity ascribed to the pestilential wind from the south blowing across the Pontine marshes on to the neighbouring Service accommodation billets (5)

The attacks of unconsciousness have only developed during adult life since joining the Service There is no question of fits in childhood no evidence of birth palsy (6) and the question of fraudulent entry does not arise

Habits Warlike Alcohol in moderation Has been heard to ask for drinks from Titinius

Hobbies War Writes textbooks for school children

Foreign service More than a fair share but appointments requested to furnish material for his literary activities

Intelligence N A D

Physique Thin and ascetic down to the hips Legs huge (7) Failed to pass standard swimming test (8)

On Examination

C S O M. left ear
'Come on my right hand for this ear is deaf
No true tinnitus but often hears strange noises
(Query auditory hallucinations ?tinnitus)
A man of feeble temper
An angry spot glowing on the brow (9)
Admitted to medical wards for investigations

Kalends Mart Soothing syrup of Mandragora q s Urine to Water-caster for opinion Will E N T specialist please see urgently ? Sinuses normal

C S O M left I find no L N P cause for these hallucinations [illegible] to colds

a d VI Non Mart Will Ophthalmic specialist please see [illegible] find no ocular cause for these hallucinations Fundi and nerves [illegible]

a d V Non Mart Will Surgical Specialist please see this patient 'There is no indication for surgery here This is a medical case Suggest draughts of reviving blood as antelepte (10)

a d IV Non Mart Will Pathologist please supply blood in [illegible] with Surgical Specialist s opinion ' Urgently please No stored blood is available at present As the arena is closed for rehearsal and the gladiators are on leave there is no local supply Application has been made to the Sevirhans with [illegible] this treatment but owing to lease land not yet being instituted together with the need for conservation of Domain it is doubtful whether the treasury will approve this demand

a d III Non Mart Will Medical Specialist please see this case urgently ? When all investigations have been completed These should include a report from the Consulting Astrologer and the N/P Specialist With reference to the previous reports is this patient suffering from headache '

Prdie Non Mart No Will Consulting Astrologer please see this case urgently ? " Beware the Ides of March

Non Mart Will the N/P Specialist please see this case urgently ? (Medical Duty Room The N/P Specialist does not visit the hospital until Monday Should he be sent for urgently ') Yes 'Cæsar is an ambitious man of feeble temper He shows decided schizoid and paranoidal tendencies Emotional tone is flat He exhibits a dislike for thin men with insomnia

He is superstitious grown of late He has a very adequate personality with a hysterical perpetuation of symptoms The attack in the market place is consistent with a conversion hysteria and his manner on that occasion shows a regression to the negativism of the infantile state Doubtless this is due to his having been denied the privilege of maternal breast feeding which has led to an inherited resentment Finger nails bitten Will medical officer in charge of this case please do a routine physical examination for me '

a d I III Id Mart Will Medical Specialist see this case now please urgently? ' This is a case of Mémère s Syndrome (tt) To take the following mixture Take the Brain of a young man under twenty four that died violently with all its membranes arteries veins and nerves Beat it and add cephalick waters as of Tile flowers Peony Betony with black cherries Lavendar Lily Let them stand awhile then distil by coliquation and make a salt from the residue and join it to the spirit It is a brave antelepte given from a scruple to fem scruples for a dose

a d VII Id Mart Vomited B O six times

In view of Medical Specialist s report will he please assume treatment of this case ? Not so feeble a temper to-day

a d VI Id Mart Medical Specialist to S M O (M) Submitted with view to invaliding

a d V Id Mart Has L I P treatment been applied for in this case ?

Why has the G U Specialist not been asked to see this patient ? Attention is drawn to the Hospital Standing Orders forbidding the wearing of side arms These are to be handed in at the Receiving Room on admission and hospital togas only are to be worn in the wards These orders are in accord with Article XXI of the Pax Britannica

a d 11 Id Mart Transfer to Medical Specialist " Re transfer This is an E N T case Check treatment

a d III Id. Mart Transfer to E N T Specialist Will G U S please see this case urgently ?

Pridie Id Mart Bed ticket away

Id Mart This patient does not suffer from incontinence Wife ditto I find no Genito urinary pathology to account for his having no headache "

Allow shore leave 0600–1700

0845 Readmitted with incised wounds of neck back and chest Sword thrusts ashore whilst not on duty Dead admission Check victualling a/m S M O (8)

Will Pathologist assume charge of this case urgently please ? It is requested that everything may be interred with his bones ' Secretary to S R.A Cæsar's will is to be forwarded to my office forthwith

The bed ticket which has come to light during recent excavations enlightens this abrupt note The following comments are added by the translation for which the authorities cannot accept any responsibility and which comments are not to be understood to represent official opinion

1) The recorded treatment for sterility in the Roman Empire of Cæsar's day dates from antiquity Women suffering used to run naked through the streets on the Feast of Lupercalia pursued by vigorous priests When caught their afflictions were relieved This form of treatment has persisted through the ages and survives to this day in a modified form Its best known adherent in this country was Godiva of Coventry who introduced a horse into traditional technique

2 Cæsar was born posthumously by Cæsarian section to which the Lex Cæsare refers The presentation of the back of the hand when pushing away the offered crown was not due to bath injury to the so-called waiter's palm As Cæsar was a known swindsman it is quite likely that this semiological disability was in fact present The explanation afforded by the N/P Specialist is possibly correct

3) There was a dental service of a sort in ancient Rome but contemporary writings indicate that it was not very efficient

Hard we in your teeth Octavius

The State Dental Service had not then been instituted

4 Brutus

5 Anjustus's bank has not been discovered the deafness from which Cæsar suffered cannot have been due to quinsies

6 2)

It is difficult adequately to account for the swelling of Cæsar's legs It was presumably not due to cardiac oedema in view of the absence of dyspnœa which would scarcely have permitted the somewhat long speeches he was prone to make Neither is it probable that he would have been allowed shore leave under these circumstances The association of a thin ascetic trunk with huge legs suggests the possibility of lipodystrophy but of course filarial elephantiasis is to be considered This latter might account for Calpurnia's sterility

[illegible] the Roman forces [illegible] running of [illegible] day [illegible] natural [illegible] Brutus but [illegible] [illegible] Cæsar is [illegible] Spe that [illegible] [illegible] [illegible]

the real thing [illegible] [illegible] [illegible] [illegible] the previous year when I had signed on as cook

I looked [illegible] [illegible] [illegible] from Cowes as the best part of the programme and [illegible] [illegible] [illegible] stages stopping perhaps at Ladworth for one night [illegible] which appealed to me [illegible] at the time As things turned out [illegible] different impression of me for us

It [illegible] [illegible] [illegible] that I should be wise to learn the elements of [illegible] navigation and I approached a Master who gave me an hour's intensive coaching at the conclusion of which I did not hope understand a Tidal Atlas and [illegible] [illegible] follow the tide tables Fortified with this knowledge I felt competent to undertake the navigation of a battleship and had no qualms at all about a trial trip such as I contemplated

I had agreed to join my boat at Cowes on 4th August but a last minute telegram told me to go to Portsmouth instead and meet the officer I was to relieve in H M S *Thesus* where he would turn over to me and give me all the "gen" I caught a train accordingly to Portsmouth and reached my destination about 1930 I met the Lieutenant Commander whom I was relieving in the wardroom where I spent a very happy hour I had known him as a House Officer at Dartmouth and it was under his command that I had sailed as cook the previous summer A very autocratic Captain he had been I remember but we had won the Falmouth race and done well in that to La Rochelle He gave me all the advice possible and told me to leave at 2100 at least that is what I thought he said but possibly under the influence of duty free I may have got my facts a little muddled

Anyway I left him with some reluctance at 2000 and joined my boat which was alongside a dockyard tug One of the cadets was taking the evening air in the cockpit and I was much amused to hear him shouting to his friends in the cabin below— Captain's coming aboard The change from my more usual title of P.M.O tickled me not a little

At 2100 we slipped There was a very strong flood tide to contend with and a light south easterly wind Progress was slow and it was not until 2315 that we cleared Fort Blockhouse My first experience of being in sole charge of a yacht was therefore to be a night sail across Spithead and I did not fancy it in the least as the whole place appeared to be a mass of blinking lights and at the best of times I was not familiar with those waters My crew however seemed quite at home there and were not in the least perturbed so I plucked up what courage I could and tried to appear unconcerned We reached Cowes without incident at 0200 The wind had dropped almost completely by then and with a strong west going tide we were obliged to anchor As it turned out we were in the middle of the fairway and I felt that up to then I had not made a very favourable impression upon my crew I determined to retrieve the situation if I could and waving an Aldis lamp I made a signal to the guardship at the highest speed of which I was capable asking for a boat to tow us into the harbour The signalman on watch on that ship must have been a superman as he was able to understand my erratic morse and what is more to make a reply which even I could read. I hope he was made Chief

[illegible] will rapidly [illegible] able in [illegible] I hope by the [illegible] that it may not. I [illegible]

A [illegible] on came to our assistance and [illegible] more suitable anchorage off the Island Yacht Club after we had had a strenuous tussle with the anchor as the tide was running so strongly that we had the greatest difficulty in weighing at all and eventually could only do it with the motor boats and

After this we settled down to get some sleep for what remained of the night Next morning I found that one of my crew had a septic hand It looked as though a splinter spear unfortunately had lodged and without any of the tools of my trade I could do nothing for him I therefore packed him off ashore and told him to cross over and report to the Royal Naval Hospital at Bushir as he would obviously be unfit to sail for several days We then weighed and left harbour We practised starts for a while and got away to a reasonably good one ten seconds behind the gun when our race commenced at 1020 being led by two other 30 metres We quickly overhauled one of them but could make no impression on the leader who won comfortably with us second at 1130 It was highly gratifying to have obtained a gun in my first day s racing at Cowes but on reflection I had to admit that the credit must go to the crew who knew the boat well and had had three days experience over the same course

Next day we decided to try our luck in the handicap for yachts between 10 and 25 tons T M We were second over the line at the start with the previous day s winner just astern of us to starboard and two other boats to port They all overhauled us rapidly and at the first mark, West Lepe buoy we were lying fourth Another boat passed us at the third mark and when we reached West Lepe in the second lap we were overtaken by still another boat This was our own fault as on the principle of doing something different from the leaders I kept out instead of going close inshore and lost a lot of ground by so doing The weather had deteriorated it was raining hard and visibility was poor We could make no impression on the leaders and had a rather depressing sail for the remainder of this race and finished a dead sixth at 1 30

We returned to our anchorage and feeling that the crew needed a hearing up after such a day we decided to run ashore and went to the Fountain Hotel for dinner Coming back we decided to have a look at *Bluebottle* so one of the crew took the oars while I sat in the stern of our dinghy—a pram Unfortunately neither of us realised how badly the boat leaked, and by the time we reached *Bluebottle* the water was almost up to the thwarts I perched myself on the transom in an endeavour to keep an important part of my only decent pair of flannel trousers dry and we got back to our own boat just before the dinghy filled right up

Saturday 7th August was the last day of the regatta There was a fresh south easterly breeze blowing and we crept out of harbour at 1030 with one roll in the mainsail My crew were anxious to strike this out but not liking the look of the weather and being by nature a timid man I was just

[illegible] I should have done [illegible] much [illegible] I should [illegible] have [illegible] the order to take in another We tried [illegible] starts taking a turnout through the Prince Consort Buoy to the Calshot Light Vessel It took us exactly five minutes to reach the starting line from this It was still blowing hard but my attention was drawn to another 50 Metre which was under full mainsail so I was obliged to abandon my natural caution and the roll was very soon taken out

This race which was another handicap was due to start at 1120 and on this occasion we at least got a perfect start crossing the line simultaneously with the gun and dead level with another 50 Metre The course was as follows—Line to West Lepe Buoy to West Bramble Buoy to West Middle Buoy to Line Twice round Distance about twenty one miles The wind was freshening as we started on a reach The fun began at 1200 when the leach of the Genoa split The crew were very hot on this hoisting the working jib and handling the torn sail in a most seamanlike manner There would be a run after we rounded West Lepe and just as we were making up to the buoy my 'First Lieutenant' asked if we should use the Spinnaker There was I thought a nasty leer in his eye as he added that the sail was all ready for hoisting in stops With as much nonchalance as I could summon I replied that of course we would inwardly wondering what on earth was going to happen Left to my own devices I should undoubtedly have taken in a few reefs and gone home No sooner were we round the buoy than the Spinnaker was hoisted I am sure we looked a fine sight as we seemed to be travelling at the speed of the Cornish Riviera Express the sail was ballooning out beautifully and its boom was bending up into the most remarkable U shapes so that one member of the crew had to be constantly sitting on it However, no disaster overtook us and I was thankful when we had rounded the next buoy and could lower this sail

We finished the first lap at 1330 lying third *Cynthia* was in the lead with *Sea Wraith* second *Atlanthus* the scratch boat was overtaking us and passed us before we reached West Lepe again, but we regarded it as no mean achievement to have led her for one whole lap

That beastly Spinnaker went up again as soon as we rounded the mark and at 1520 the Spinnaker Boom broke whilst Father was sitting on it causing no little amusement to the Ship's Company who had no respect for his grey hairs as he cut a far from dignified figure Anyway as there was no other suitable spar in the boat to take the place of the broken one the sail had to come in and after that we got on at a far more sedate pace *Atlanthus* was now well ahead and we estimated that she had a lead of five minutes on us at the West Bramble which she had increased to ten at West Ryde Middle She continued to draw away and we finished fourth on corrected time We might or might not have saved our time on the scratch boat had it not been for the accidents to the Genoa and Spinnaker Boom but we had had a stimulating sail which we had all enjoyed

We returned to our anchorage and went ashore to the Island Yacht Club for ablutions I met a Marine Officer with whom I had served in a cruiser

in the early days of the war but our jollification was cut short as the storm cone was hoisted for a southerly gale at 1800 and we returned to our ship We supped at 2000 the outlook was dismal in the extreme and by 2200 the wind was increasing in force noticeably We veered some cable and made everything as snug as we could I did not like the look of the weather at all and as it turned out I was to have one of the most unpleasant nights I have ever spent in my life

The wind steadily increased in force with very fierce gusts which caused the boat to yaw in a most alarming manner and to snub violently on the cable It started to rain the squalls reducing visibility to practically nil and by mid night a full gale was blowing I was becoming very concerned about the cable for if that were to part we should in all probability be finished Nothing could have saved the boat and I did not fancy the chances of my crew if it came to swimming for it I suppose a more courageous mariner might have hoisted a well reefed sail and got out of it but to me that seemed a very foolhardy undertaking as we should have had the entire South Coast of England under our lee and our predicament would have been worse than ever We had no second anchor and there was not even a sinker in the boat which we might have sent down the cable to reduce the snubbing I spent a most uncomfortable night looking at the cable at intervals wondering what to do next trying to make up my mind what to do if and when the cable parted and when I had time to think of anything else wishing with all my heart that we were comfortably tucked up in bed at home At 0420 there was a terrific crash and the entire crew were on the fo'c'sle in the twinkling of an eye I thought that the cable had parted or was at least rendering but all was well though we could hardly believe it We veered a little more cable and like St Paul s shipmates on another occasion prayed for the dawn

By 0700 the gale had moderated somewhat but it was very nearly low water and we were aground ! I took a sounding and found five feet of water as we drew six this was not very promising The boat had a pronounced list to port but we managed to right her by all getting on the cable and hauling her forward although even then her keel was still touching but we dared not haul any more as it was still blowing quite hard and the cable was bar taut Low water was at 0721 so we hoped that with the turn of the tide we should be able to get into a safer position A motor cruiser just astern of us was yawing horribly at her moorings and I feared she might hit us but by working his engines her owner managed to avoid a collision He told me that his boat was touching at intervals and added that it was most unfortunate that the lowest tide of the year should happen to coincide with such an unseasonable gale

To my jaundiced eye the view of the harbour was far from pleasing Numerous sandbanks which I had not known about were showing above the water and one boat had been washed up on the breakwater during the night and must have been extensively damaged In view of the force of the gale I was surprised that there were no more

By 0800 we were afloat again and I felt a little happier We had breakfast at 0900 and an hour later one member of the crew left us so there were only

[illegible] including myself in [illegible] Cowes to Dartmouth [illegible] afternoon *Sea Breath* passed us [illegible] Portsmouth Her Captain informed me that there were vacant moorings further up the harbour which she had been lying and I decided to move up there before nightfall [illegible] I had no intention of spending another night when I was and did not wish to leave Cowes until there was a more favourable weather report

At 1700 we weighed and went up harbour under mainsail only with six rolls in it We hailed a twelve metre and asked if we could moor first alongside They welcomed us with open arms and thus led to a most enjoyable *entente* for the owner and his crew were most hospitable and we were very grateful to them for what they did for us

There were four of them aboard—the owner a friend of his and their two boys One of the boys was at another Devon School which is a great rival to the College in most game They both paid us a visit and were entertained in the cabin of my boat for a while It was most amusing to listen to the boys gently baiting each other I called up in a corner playing pussum and was much entertained by this friendly hunter for the greater part of an hour

At 1900 we were all invited to dine in the other boat and we enjoyed an excellent meal cooked by the owner After the meal we were shown round and at 2230 we returned to our own boat and turned in as we were all pretty tired after the previous nights experiences

We woke on Monday 9th August to find that the gale had subsided and it was a warm sunny day with light westerly airs We sailed at 1115 going out under working jib and hoisting the mainsail under way The tide was flooding so we had a hard battle against it all the way to the Needles and did our best to cheat it by keeping well inshore In this we were comparatively successful and only went aground once ! By dint of going about immediately however we got off without trouble Our twelve metre ' Chimmy Shop ' passed us on the port tack at 1433 At 1610 we cleared the Needles and Pot Bank buoy at 1620 At 1710 we altered course to S 35 W and ten minutes later I got a fix on St Catherines Needles and Hengistbury Head Estimated speed 5 knots At 1820 we went about course N 30 W The wind was freshening considerably and we were having a most enjoyable sail At 1930 the fore sheet parted we rove a new one and took down two rolls in the mainsail This evolution completed we went about I could have steered S 80 W close hauled but I was anxious to give the Portland Race a wide berth so eased to S W bringing her up to S 70 at 20.0 when I was well clear of the race The wind continued to freshen and I began to fear we were in for another dirty night At 2230 with Portland Beacon bearing due North we took a third roll in the mainsail One or two of the crew were beginning to feel the effects of the motion and they disappeared below The remainder went down for some sleep leaving me alone in the cockpit and as they were pretty well exhausted and in any case I should have to remain there all night I had not the heart to get any of them up Besides I was rather enjoying the sail It got very cold as the night wore on and the wind backed steadily forcing me more and more to the southward The sky was overcast so there were no stars to steer on and I was

[illegible] was very [illegible] and [illegible] had a strong [illegible] At 0400 I sighted the [illegible] of the Start light fine on my starboard [illegible] is evident that we had been forced well to the Southward of [illegible] It was disappointing as had the wind continued in the direction [illegible] it was blowing when I took my departure from Portland we should have been able to make Dartmouth easily on the one tack and [illegible] great reputation as navigator!

At 0420 one of the [illegible] appeared rubbing shoulders with us. I was uncomfortably [illegible] With his help I went about to N 20 W. It was just beginning to [illegible] and there was a mild twilight, so with an overcast greyness. Not [illegible] land could be seen. Altogether it was a most dreary spectacle. The [illegible] over from us and I turned to him and turned in but only [illegible] shepherd to [illegible] It seemed as I had [illegible] Dawn [illegible] and found the east fine Start Point to Teignmouth [illegible] minutes later I emerged [illegible] out of the haze directly ahead.

The wind [illegible] as contrary as possible. We arrived to due West. [illegible] Teignmouth and went about on a South. We crept along the [illegible] across Torbay where we were just in time to get in a [illegible] The races for the Olympic Regatta the Dragon [illegible] the Eastward and and it was a fine sight to see them blue [illegible] Spinnaker [illegible] as they rounded the buoy. We tacked along in the Start [illegible] and [illegible] we were off the entrance to Dartmouth Harbour. [illegible] I think and we ought really to have had a reef but [illegible] was scarcely worth it. I altered course to [illegible] the [illegible] and fifteen minutes later we were abreast Dartmouth Castle and it is hard to believe that it was blowing so hard outside as we were completely blanketed by the high banks of the estuary and could make no progress against the strong ebb tide. We anchored and one of the crew went ashore in the dinghy to telephone the College and ask for a tow. In the meantime the Secretary of the Yacht Club came to our rescue in a small motor dinghy and a few minutes later one of the College power boats arrived on the scene. By 1700 we were safely alongside the wall at Sandquay.

A very hungry crew accompanied me to my house where my wife prepared a substantial meal a kind of cross between lunch and tea and between us we wolfed it in record time. After that all but one who had missed his last train home that day went off to their homes. He spent the night in my house and went off by an early train next day.

So ended a very enjoyable week which might well have ended in disaster. If this should happen to catch the eye of any of the party I should like them to know how much I enjoyed their company. It had had a wonderfully rejuvenating effect on me and for a time I had almost deluded myself into the belief that I was again a young man.

BCG VACCINATION

BY

Surgeon Commander I. C. MACDONALD, M.D., Ch.B., M.R.C.P., R.N.

BCG vaccination has recently re-emerged into prominence in the medical literature of this country and is now about to be used in selected groups of the population. During a recent visit to Scandinavia opportunity was given to see the anti-tuberculosis campaign in action in its various aspects: dispensaries, education and propaganda, mass radiography, tuberculin testing and BCG vaccination. Most of the facts concerning BCG are widely known and these notes are concerned mainly with some practical aspects in its use.

BCG is a vaccine made from a living strain of bovine tubercle bacilli of a very low and almost fixed virulence. The vaccine was originally produced by Professors Calmette and Guerin of the Pasteur Institute who cultivated the bacillus for fifteen years on an ox bile potato medium before it was finally used on man in 1923. All BCG now used comes from this strain but methods of cultivating and preparing the vaccine vary in different countries. In Denmark the vaccine is prepared at the Danish Serum Institute. The bacillus is grown on a synthetic fluid culture medium, Sauton's Asparagin and transferred regularly to maintain stability. No claim is made that the potency of the strain is entirely constant and the greatest importance is attached to the maintenance of potency at the required level and much experience in the work is required to attain this. It is necessary to use a vaccine that has been well tried out and the production and maintenance of an effective vaccine is essential. The aim is the production of a vaccine that is 100 per cent successful in converting non-tuberculin reactors to positive reactors and in general, in Denmark 98–99 per cent is achieved. In addition to being of the required potency there must be avoidance of complications and severe local reactions. If it is too weak the conversion rate from non-reactors to reactors will be too low and the maintenance of tuberculin sensitivity will last too short a time. In preparing the vaccine the bacilli are grown on the surface of the fluid medium and a 14 day old culture is used. A suspension of the culture is made in diluted medium, a ¼ mg. of BCG culture to 1 c.c. medium and it is distributed in glass ampoules after a control test for sterility has been carried out. The dosage used in giving the vaccine by intradermal method is 1/10 c.c. or approximately 1 million bacilli. The vaccine can be used for two weeks after preparation and it should be kept at a temperature of 2–4° C. It is supplied in glass ampoules which are thoroughly shaken before being used.

BCG vaccine is never used without a preliminary tuberculin test and only negative reactors are ever vaccinated. These have never been infected with tuberculosis or tuberculous infection has taken place a long time before and

they have no antibodies against the tubercle bacilli [illegible] an amount to give any degree of effective protection [illegible] Tuberculin testing is an integral and essential part of the campaign against tuberculosis It is essential as a preliminary to vaccination and is also widely used in conjunction with mass radiography and at the factories visited during mass radiography tuberculin testing was carried out at the same time

Certain conditions are liable to cause errors in interpreting the results of tuberculin tests and may give a negative reaction where tuberculous infection has already occurred As it is necessary to protect the reputation of the vaccine it is important that it should not be given to a false negative reactor who may develop tuberculous disease from an infection acquired before the vaccine was given The giving of the vaccine to a patient already infected with tubercle bacilli does no harm but it is not necessary and risks the reputation of the vaccine For this reason vaccination should not be carried out during periods of epidemics and particularly when there is an epidemic of measles Some other diseases and poor health and debility may also temporarily convert tuberculin reactors to nonreactors In Denmark it is believed Boeck s sarcoidosis may also invalidate the result of a tuberculin test

A tuberculin test is necessary before BCG vaccination in order to eliminate cases of tuberculosis to avoid causing Koch phenomena with the resulting danger of abscess formation and to divide the population into those who have already an acquired immunity against tuberculosis from previous infection and those who require the production of allergy and immunity by vaccination The Koch phenomenon in humans is a small red painful nodule appearing at the site of inoculation and though not dangerous in itself may be somewhat troublesome Tuberculin testing is so important a part of BCG vaccination and is so necessary to protect the reputation of the vaccine that the production of the tuberculin and the method and technique must be thoroughly reliable

Tuberculin was originally prepared by Koch in 1889 and his preparation is known as Old Tuberculin The tuberculin used in Denmark now is P P D (purified protein derivative) It is prepared by growing the tubercle bacilli on Sauto medium which contains no protein The P P D is standardized as Tuberculin Units (T U) and 1 T U is equivalent to 1/100 mg Standard Old Tuberculin or 1/50 000 mg International Standard Dilutions of tuberculin will only keep a certain time and the more diluted the preparation the shorter time it will last The usual tuberculin test carried out is the Mantoux test The tuberculin is diluted for 1 T U and 10 T U and can be used up to 1 month old In the initial test 1/10 of a c c or 1 T U is used and the injection is given intracutaneously as superficially as possible The result must not be read before the third day after injection i e after seventy two hours and not later than ninety six hours For a positive result there must be a definite area of infiltration with a diameter of at least 6 mm It is the area of infiltration that is important and redness and inflammatory reaction are not considered A diameter of less than 6 mm is not considered a positive reaction.

If there [illegible] 1 T U then [illegible] should be repeated out using 10 T U

In children the Mantoux test is commonly used It is particularly sensitive in [illegible] and can be used up to the age of 12 but not later The [illegible] of an ointment made from Old Tuberculin and P P D [illegible] square of adhesive tape A small portion of ointment [illegible] a match head is placed in the centre of the adhesive square A [illegible] adhesive tape alone is carried out first and there should be no [illegible] left on for forty eight hours The tuberculin preparation is left on for [illegible] hours and the result read on the third day If positive there should be at least 3 typical papules in the area of the application

Another test sometimes used is the adrenalin Pirquet test which is a cutaneous scratch method This is a very sensitive test but in all the adult testing seen being done in Copenhagen the Mantoux test was used The Mantoux test is done on the dorsal aspect of the middle of the forearm and the other tests in the corresponding part of the volar surface In carrying out these tuberculin tests and also in giving BCG intracutaneously no cleansing of the skin is carried out and no antiseptics are used on the skin It is the practice in tuberculin testing before vaccination to state the method of testing and the dosage employed To exclude cases of tuberculosis a negative reaction to a Mantoux test of 10 T U s and a negative Moro—Patch test up to the age of 12 is considered sufficient It is considered that if these tests are used properly no other disease gives a positive tuberculin test with the characteristics as described

The BCG vaccine is given in Scandinavia almost entirely by the intracutaneous route and this is the only method used now in Denmark Calmette originally gave the vaccine by mouth and this method is used now only for the newborn by some The multipuncture method using the Birkhaugs needle or any modification of it where vaccination through the skin is practised is discarded in Denmark though it is still used to some extent in Norway The reason for this discussion is the difficulty of measuring the exact amount of vaccine inoculated by this method and the greatest importance is attached to the amount of vaccine given if the ideal of 100 per cent conversion rate and the maintenance for sufficient time of a positive tuberculin reaction is to be achieved The vaccine if given subcutaneously is apt to cause abscesses and is never used in this way The great advantage of the intracutaneous method is the amount of vaccine given can be measured and with a vaccine of the correct potency a very high conversion rate can be achieved and a degree of immunity which lasts for four to five years in at least 90 per cent of cases

The BCG is given by a special syringe and a very short about 1 cm platinum iridium needle is used to facilitate the giving of a true intradermal injection A similar type of syringe and needle are used in the same way for the Mantoux test The injection is given very superficially and the resulting blister like area in every case seen inoculated showed a remarkable uniformity in size The injection is given fairly slowly in order not to cause

[illegible] and if given correctly the hair follicles are [illegible] in the pillars of the wheal. The vaccine as given intracutaneously is under tension in the epidermis and if given as superficially as is desired a minute bead of fluid is seen to exude from the needle puncture on withdrawal. The wheal should have a diameter of about 10 mm. and normally it lasts for several minutes to half an hour. The amount given is 1/10 c.c. and is given high in the deltoid area and any local reactions thus may be cause the minimum of inconvenience.

There are no general symptoms arising from BCG vaccination and no pyrexia is caused. In some three to four weeks a small red papule 7 to 8 mm. in diameter appears which increases in size for several days and which may be slightly painful. In some cases a small ulcer develops a week or two later but in three or four months this heals leaving a small red scar which in one to two years becomes a faintly visible small white shallow scar 3 to 4 mm. in diameter. If an ulcer has developed no antiseptic dressing or adhesive plaster should be used and a simple dry dressing is the most effective.

After vaccination the Mantoux reaction should become positive in six weeks time though it may take as long as ten weeks. If negative after ten weeks the vaccination should be repeated. The time which the tuberculin reaction will remain positive varies but in the vast majority it lasts four to five years the reaction gradually lessening towards the end of this period and this period of four to five years may be regarded as the duration of such protection as is given.

In practice it is not necessary to test the tuberculin reaction of every case after vaccination as it is found in Scandinavia that a minimum of 98 per cent are successful. It is a good thing however to test the reactions of small groups from each batch of vaccine in order to control its efficacy and the results should be made yearly to the bacteriologist in charge of the making of the vaccine.

Complications from vaccination are rare and when they occur are not of a serious nature. In Copenhagen complications were not more frequent than in 2,000 cases. Correct technique of giving the vaccine lowers the incidence of complications and if given too deeply in the skin or even beneath the skin there may be greater local reactions than normal. When ulceration does occur healing takes place in a few months time with simple dressings. Occasionally a local lymph node may enlarge become tender and possibly suppurate and this if it occurs is usually two or three months after vaccination. Usually a single simple aspiration is sufficient to deal with abscess formation if it does occur but this may require repetition. The abscess should not be regarded as an ordinary tuberculous abscess and treated as such.

It is not proposed in this issue here the application of BCG vaccination to supply statistics advanced to prove its efficacy as these are freely available in the extensive literature on the subject. Briefly it may be expected that the tuberculosis rate in non-reactors to tuberculin who receive BCG will be 1/5th the rate in those non-reactors who do not receive it. All of those met in both Denmark and Sweden engaged in the campaign against T.B. are completely satisfied that the use of BCG is worth while. They recognize its limitations and regard it as only one weapon in the fight to eradicate the disease.

a fight waged in these countries with enthusiasm and thoroughness by all the recognized means

I am greatly indebted to Dr H Neilson of the Central Tuberculosis Dispensary, Copenhagen who gave so much of his time in showing me the BCG vaccination and other anti tuberculosis work in progress, and for making available so much of the information recorded here

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DISEASES OF LEADING IMPORTANCE TO THE NAVY[1]

BY

Captain (*M C*) ROBERT L WARE, U S N

A QUESTION frequently asked since the close of hostilities is What was the navy's most important disease during the War[2] While this simple question would seem to deserve a straightforward answer it soon becomes apparent that the word importance has a wide range of interpretations and that a dozen individuals might review the record and determine a dozen different diseases as being the most important in the navy For example one disease may have been outstanding at training stations during a given year while a different one was of leading importance to Marines or to enlisted personnel generally or to personnel afloat The navy experience may be grouped in accordance with many different lines of cleavage and as many different diseases may thereby be thrown into prominence Diseases of importance at specific times or to selected groups of personnel are correctly considered important in the particular situation but may be relegated to a lower position when evaluated in terms of the experience of the total naval forces

In this presentation the entire strength of the Navy and Marine Corps is considered for the four year period 1942–45 Injuries due to enemy action are eliminated throughout the study but all diseases and non combat injuries are included

Four different criteria are presented for evaluating the importance of the various diagnoses that contributed to the navy's wartime experience The total number of sick days the frequency of incidence the number of persons invalided from the service[2] and the number of deaths resulting from a given disease are four basic factors by which the importance of the disease to the navy may be judged In this study the leading diagnoses are shown in rank order for each of these categories

[1]Reprinted from the *United States Naval Medical Bulletin* March April 1948 Statistics prepared by the Medical Statistic Division Bureau of Medicine and Surgery Navy Department U S A

[2]The term "invalided from the Service" means that an individual's service in the navy or marine corps was terminated because of physical disability

While civilian health statistics are usually confined to the incidence of various conditions and the deaths attributable to them it is useful from the navy standpoint to study also the number of days lost from duty and the number of men lost from the service through invaliding. Sick days statistics not only show the man power loss through illness but also give an indication of the work load of the Medical Department and thus constitute a useful gauge of the importance to the navy of a given disease. Similarly the number of persons invalided from the service because of a specific disease is a necessary factor in evaluating the importance of the disease to the navy since invaliding represents a permanent loss of man power. The loss of man power through invaliding from the service is difficult to estimate in terms of man days. However if it should be assumed that a man's services would have been utilized for one additional year if he had not been invalided then it would be seen that the navy lost more man days through invaliding than through sick days in service.

It would be both impracticable and futile to undertake a comparison of the relative importance of sick days incidence invalidings and deaths. There is no common denominator by which loss of life may be made equivalent in importance to a certain number of sick days or invalidings. Each of these factors is a separate measure of the importance of a given disease to the navy and the fact that the disease causing the greatest number of deaths produced only a relatively small proportion of the total sick days does not reduce the importance of the disease as the leading cause of death. However it may be fairly considered that the importance of a condition to the navy is increased when it stands among the leading causes in more than one of these four categories. That is a condition ranking first in both sick days and invalidings is of more concern to the navy than if it ranked first in sick days only.

The five leading causes of sick days incidence invaliding and disease and injury deaths are shown in the accompanying composite table (Table I). The percentage of the total contributed by each condition is shown not only in the category where the condition ranks among the five leading causes but in all other categories as well. The rank order also is shown if the condition ranked among the leading 15 conditions in a category. This method permits a more ready comparison of the over all importance of the diagnoses which were of outstanding significance in any one of the categories.

It is apparent from an examination of Table I that the five leading causes of sick days included the first cause of incidence the first cause of invaliding and the fifth cause of injury deaths. In each instance where a diagnosis appeared among the five leading causes in two categories one of the categories was sick days. Moreover in the whole list of 22 diagnoses it is seen that a greater number had importance in the sick day category than in any other. This indicates that if a single criterion of importance were to be used the rank order based on sick days would be more likely than any other to include the diseases of importance in other categories. This also illustrates the danger of basing conclusions as to the over all importance of a diagnosis on any one criterion and emphasizes the need to consider all of the factors.

Sick Days

[illegible] is a cause of [illegible] survey [illegible] [illegible] and in the first rank in two [illegible] Without [illegible] these are [illegible] psychoneuroses the diagnosis [illegible] a [illegible] in frequency [illegible] and tendency ranking eleventh in this [illegible] It was the [illegible] leading cause of [illegible] power

TABLE I LEADING CAUSES OF SICK DAYS, INVALIDINGS AND DEATHS NAVY AND MARINE CORPS 1942–45

	Sick days		Invalidings		Deaths					
	106,616,336 100 per cent		1,175,525 100 per cent		318,912 100 per cent		5,346 100 per cent		22,197 100 per cent	
Diagnosis	Per cent of total	Rank order	Per cent of total	Rank order	Per cent of total	Rank order	Per cent of total	Rank order	Per cent of total	Rank order
Psychoneuroses all types	4.9	I	13	XI	15.7	I	0	—		—
Catarrhal fever acute	4.7	II	17.7	I	0	—	0	—	—	—
Fracture simple	4.2	III	2.0	VIII	5	—	—		3.9	V
Malaria	3.1	IV	3.3	VII	2	—	1.3	XII	—	—
Rheumatic fever	2.9	V	3	—	1.7	XIV	1.0	—	—	—
Gonococcus infection urethra	1.9	IX	5.4	II	0		0		—	—
Tonsillitis, acute	1.2	XV	4.2	III	0		0	—	—	—
Cellulitis	1.1	—	2.9	IV	0	—	0	—		—
Gastro-enteritis acute	.5	—	2.4	V	.0	—	0	—	—	—
Personality disorders	2.5	VI	9	—	11.5	II	0	—	—	—
Arthritis, chronic	1.9	VIII	5	—	4.3	III	0	—	—	—
Deformity acquired	1.0	—	4	—	4.0	IV	0	—	—	—
Ulcer duodenal	1.5	XII	4	—	3.8	V	7	—	—	—
Coronary heart disease and thrombosis	.2	—	.0	—	3	—	14.9	I	—	—
Tuberculosis	1.3	XIII	3	—	2.7	VIII	6.3	II	—	—
Carcinoma	.1	—	.0		.0	—	5.1	III	—	—
Appendicitis	1.6	XI	1.6	X	0	—	4.5	IV	—	—
Pneumonia, lobar	.5	—	.4	—	0	—	3.1	V	—	—
Injuries multiple, evd	.0	—	.2		.0	—	—	—	40.0	I
Drowning	0	—	.1	—	0	—	—	—	29.8	II
Wound gunshot	.3	—	.1		.1	—	—	—	5.0	III
Fracture, compound	.8	—	.3	—	.1	—	—	—	4.7	IV

NOTE—The 5 leading causes in each category are shown by bold faced type. Rank order, indicated by roman numerals is not shown for conditions ranking lower than XV

loss both through sick days in the service and through loss of individuals by invalidings.

Catarrhal fever acute ranking close second as a cause of sick days, was first in frequency of incidence. It accounted for more than one sixth of all the cases admitted to the sick list with more than three times the incidence of the second most common disease. Catarrhal fever however did not figure as a cause of either invalidings or of death.

[illegible] one third as a cause [illegible] It also accounted for [illegible] of the [illegible] of the navy. For [illegible] the [illegible] this [illegible] is shown [illegible] in three categories. With [illegible] condition [illegible] importance [illegible] injuries causing death, the [illegible] the condition [illegible] that the overall lethality rate was only [illegible] per 1,000 cases. Simple fracture of the skull was a prominent contributor to [illegible] deaths under this diagnosis.

The fourth and fifth ranking causes of sick days, [illegible] and rheumatic fever, did not reach that level of importance in invaliding [illegible]. Malaria, however, accounted for an appreciable proportion of the total incidence as well as of disease deaths, and rheumatic fever could be [illegible] a cause of invaliding.

Incidence

Following catarrhal fever in frequency of [illegible] tonsillitis, acute cellulitis and gastroenteritis. Together these conditions [illegible] for only third of all diagnoses established during the year. However, none of these was of significance as a cause of invaliding or death. With respect to man days lost, the five leading causes of incidence accounted for 9.4 per cent of the total sick days as compared with 11.8 per cent accumulated by the five leading causes of invaliding. It is clear that the five most common diseases are not of importance from the standpoint of permanent manpower loss to the navy, and are secondary to less frequent diseases as a cause of sick days. These common diseases of high frequency derive their importance rather from their relationship to communicable disease control, and from the work load laid upon the Medical Department by the sheer numbers of individuals to be treated for these conditions.

Invaliding

The five leading causes of invaliding from the Service account for 30.3 per cent of all invaliding. It will be noted that two of the major types of neuropsychiatric disorders lead the list by a considerable margin, reflecting the prominence of the entire class of mental diseases as a cause for invaliding. The psychoneuroses, already mentioned as the leading cause of invaliding, were followed by personality disorders, arthritis, chronic deformity, acquired duodenal ulcer. As a group these conditions make up only a modest proportion of the incidence, but figured rather heavily as a cause of sick days. The number of deaths ascribed to the five leading causes of invaliding was proportionately quite small.

It is of interest to note the high ratio of invaliding to incidence in these conditions. Invaliding from the Service resulted for roughly three in every four men in whom the diagnosis of personality disorder or psychoneurosis was made. For duodenal ulcer and deformity acquired, the ratio was about five in eight, and for chronic arthritis about one in two.

[illegible]

[illegible] Since disease deaths [illegible] disease [illegible] their relative importance.

[illegible] by far the most [illegible] seventh of the [illegible] with respect to [illegible] has a fairly high rank [illegible] and sick days is second as a disease causing death. [illegible] in order are carcinoma, appendicitis, and bronchopneumonia. Of the latter only appendicitis has any marked standing in other categories.

The majority of the non-combat deaths due to injury resulted from injuries multiple extreme (40 per cent of total) and drowning (29.8 per cent). These diagnoses [illegible] by wound, gunshot, fracture compound, and fracture simple. Sick days and hospitalizations play an inconsequential part in the evaluation of extreme multiple injuries, and no part at all with respect to drowning due to the nature of these diagnoses. Incidence and deaths are of course equal in the case of drowning and essentially so for injuries multiple extreme. Consequently these diagnoses are to be evaluated solely as causes of death. Remembering that combat casualties are excluded, it is of interest to note that drowning, which for years was the navy's leading cause of death, ranked second during the war.

Direct comparison of the navy's mortality data with that of the civilian population of the United States must be made with caution because of the obvious differences in the make-up of the two groups. It is of interest to note, however, that heart disease and cancer, which led the list of causes of death in the United States[1] and are ordinarily associated with older age groups, were also prominently represented in the Navy. A different picture is seen with respect to injury deaths, which accounted for 81 per cent of the navy's non-combat mortality and only 8 per cent of the total deaths in the United States.

The fatality rates for the leading causes of death from disease and injury are shown in Table II. These figures show that some of the conditions owe their high rank as a cause of death to a high frequency of incidence and a relatively low fatality rate, while others of less common occurrence become important causes of death because of high fatality rates.

The foregoing discussion has been limited to the five conditions of highest rank in each of the stated categories. It is recognized that the list shown in Table I excludes a number of diagnoses which in importance closely approach those that were listed. As a means of showing the relative position of some of these, a supplementary composite table has been prepared (Table III).

[1] National Office of Vital Statistics, U.S. Public Health Service, Federal Security Agency. Vital Statistics—Special Reports, Vol. 27, No. 2, May 16, 1947.

in which is sh[illegible] formal diagnosis that in [illegible] 2 per cent of the [illegible] any category

TABLE II [illegible] RATES PER 100 CASES FOR LEADING CA[illegible] NAVY AND MARINE CORPS 1942–45

Diagn[illegible]	Deaths per 100 cas[illegible]
Diseases	
Chi[illegible]	27·9
Coronary heart disease	27·6
Tuberculosis	[illegible]
Bronchopneumonia	[illegible]
Appendicitis	3
Non-combat injuries	
Drowning	100·0
Injuries multiple extreme	90·1
Wound gunshot	17·8
Fracture compound	8·1
Fracture simple	8

TABLE III—ADDITIONAL CONDITIONS CAUSING 2 PER CENT OR MORE OF SICK DAYS, INCIDENCE INVALIDINGS OR DEATHS NAVY AND MARINE CORPS 1942–45

	Sick days—106 616 336—100 per cent		Incidence—5 175 525 100 per cent		Invalided from service—318 919 100 per cent		Disease—5 346 100 per cent		Death—22 197 100 per cent	
	Per cent of total	Rank order	Per cent of total	Rank order	Per cent of total	Rank order	Per cent of total	Rank order	Per cent of total	Rank order
Hernia, inguinal	2·0	VII	1·0	—	0·3	—	·0	—	—	—
Pharyngitis acute	·6	—	2·2	VI	·0	—	0	—		—
Tonsilitis, chronic	1·0	—	2·0	IX	0	—	0		—	—
Asthma	1·1	—	·4	—	3·4	VI	0	—	—	—
Flatfoot	·7	—	·3		2·7	VII	0		—	—
Schizophrenia	1·1	—	·2	—	2·5	IX	·3	—	—	—
Otitis media chronic	·6	—	·3	—	2·3	X	·1	—	—	—
Cerebral thrombosis and hemorrhage	0	—	0	—	0	—	3·0	VI		
Leukemia	0	—	0	—	0	—	3·0	VII	—	—
Nephritis	·2	—	·1	—	·3	—	2·5	VIII	—	—
Meningitis	0	—	0	—	0		2·2	IX		
Burns	·4	—	·5	—	·0	—	—	—	3·0	VI
Intracranial injuries	·4	—	·3	—	·6	—	—	—	2·5	VII

NOTE.—Rank order indicated by roman numerals is not shown for conditions ranking lower than XV

The 35 diagnoses contained in Tables I and III together accounted for about 44 per cent of all the sick days 51 per cent of the total incidence 57 per cent of the invalidings 48 per cent of the disease deaths and 89 per cent of the deaths from non combat injury The remaining proportions of these various factors were distributed among some 1 400 other reported diagnoses It is clear that these lists include the conditions that were of the most outstanding importance in reducing the man power behind the navy's guns

It has been shown that neither of the four criteria of importance used in this presentation is alone adequate for the full appraisal of a disease Each contributes a specific type of information all of which must be integrated

[illegible] evaluation. Heavy [illegible] is apparent that a high rank [illegible] of sick days is more likely to be associated with a [illegible] than a high rank in any other category. Figures on sick days also provide the best guide to Medical Department work load and are important [illegible] rates in a maximum with many man power loss. These facts suggest that a numerical exercise of sick day statistics would be rewarding.

The question of the sick days is most important to the navy during the war but it has not been answered in any detail. From the standpoint of man power loss to the navy it is clear that psychoneuroses lead all the rest. But there is no way of comparing the importance of this man power loss with the loss of life attributed to the leading causes of death. It is also impossible to assess in the ultimate comparison of all the possible implications of the most common disease, coronary heart. Further the criteria furnish a different approach to the problem and a consideration of the relative importance of [illegible] in all categories will permit evaluations to be made in terms of overall importance.

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COMPARISONS OF THE NAVAL, MILITARY, R.A.F. AND CIVIL MEDICAL SERVICES WITH PRIVATE PRACTICE

PART III

BY

Surgeon Captain R. C. MUNDAY, C.B., M.R.C.S., L.R.C.P., R.N. (Rtd.)

WHILE we were cruising in the West Indies in the *Talbot* the Commander-in-Chief, afterwards Lord Fisher, ordered all available men to be landed for a review at Barbados; the signal indicated that hats were to be worn, not caps; helmets were not issued except to boat's crews. The Commander-in-Chief took the salute and it was said would not have noticed that the *Talbot's* men led by the Commander were wearing caps if, unfortunately, the Governor's wife had not inquired of him why some men were wearing caps and others hats. The great man was furious and actually put the Commander under arrest by signal before the eyes of the whole Fleet. Our great hearted little Captain instantly ordered his gig away and boarded the Admiral. It was said that he declared to the Admiral if the Commander were not released he, the Captain, would ask to be relieved of his command as he insisted on assuming full responsibility for his Commander's neglect of orders. The Commander was released and appears to have been none the worse for this particular incident. We were then detached from the Fleet to go to New York for the Grant Memorial celebrations. My brother officers and I were invited to join the procession in luxurious carriages and pairs through the city to the memorial statue of General Grant of Civil War fame. For the first and last time

[illegible] the exp[illegible] of being vociferously [illegible] crowd [illegible] of the [illegible] length of the [illegible] of the [illegible] hats etc [illegible] saluted [illegible] [illegible] right is [illegible]

I am bound [illegible] that as I stood under the [illegible] the American [illegible] I was not [illegible] by the suddenness [illegible] is a small and neglected [illegible]

[illegible]

In the afternoon [illegible] Tho crowd was [illegible] how his hand and arm [illegible] after this You may [illegible] he so far [illegible] I remember taking a personal interest in the [illegible] disturbed by the smoking of a cigar [illegible] nearly always causes a slight reaction on the [illegible] He did not long survive that smoke

In the evening [illegible] there was a colossal banquet at which [illegible] made a diplomatic and racy speech in reply to the toast of The Queen Another good speech was made by the Papal representative Cardinal Monsignor Merry del Val He spoke perfect English I sat near him at the table and noted that he ate hardly a morsel of food and drank nothing but water Such an island of austerity amidst an ocean of feasting was a remarkable sight He spoke with vigour tact and eloquence I watched his subsequent career and felt disappointed that he never wore the Papal crown although he was popularly considered to be certain to do so

All the wardroom officers were made honorary members of the New York Yacht Club and I remember asking how it was that one never saw an American naval officer there A member explained to my astonishment that there was too great a gap between the social position of members of the club and U S naval officers Other members supported him in this astonishing statement Nothing could exceed their courtesy and kindness to us I feel that this attitude towards then navy must have changed at any rate since the two great Wars if not before

We now went south to Barbados and while here I was relieved and landed to await passage in the Royal Mail steamer to Jamaica in order to take up my new appointment at the hospital at Port Royal I spent about a week staying with friends before I could get away On board the steamer I found some very distinguished fellow passengers including the newly appointed Governor of Jamaica his wife and daughter and the new Colonial Secretary with his wife Also taking passage were my new Chief Deputy Inspector-General Coppinger his wife and children

As I was contemplating sending for my wife and son but hesitating until I

was quite sure that the recent epidemic of yellow fever had died down I was glad to see that my fellow passengers were highly optimistic and in possession of the latest and most reliable reports from the Island There was however a Major R E going to take up an appointment at Port Royal who told me he had left his wife behind in England because of the news he had received of the epidemic On our arrival at Port Royal I was struck by the unhealthy appearance of the man I was relieving His chief had been invalided months ago and he had been in charge of the hospital through the yellow fever epidemic He and the other surgeon both bachelors had escaped infection but there had been a very high mortality in the dockyard and garrison For many years Port Royal had been generally considered too unhealthy for officers to bring their wives and it was a relief to find on making the acquaintance of people on shore that they were quite unperturbed The church at Port Royal however, showed why the place had acquired such a bad reputation Its walls were literally covered with memorials of the losses of naval ships companies officers, and men of the garrison from yellow fever

Fortunately for me the epidemics appeared to occur roughly about every three years I arrived at the end of one and the next one which carried off many of my friends broke out just after I had left The last of many great earthquakes also occurred soon after I had left and it destroyed my house and most of the buildings of the hospital For three years I my wife and our 3 year old son lived very happily on this sun drenched sandy spot of land cut off from the mainland by five miles of water or ten miles along the loose sand of the Palisadoes All the time I was there only one man was known to have accomplished this walk and he, a sturdy young lieutenant had to lay up in bed for twenty four hours after it

Life at Port Royal

We followed a regular routine of rising a little before dawn pulling a little skiff out of the harbour to one of the many little uninhabited coral islands, where we would all bathe in the clearest water imaginable pull back again to a cold bath breakfast and work in the wards until lunch after which every one who could avoid the need for activity rested in a net hammock until 4 o'clock tea After this all the officers in the hospital the garrison and their wives or sisters would meet at the naval club where there were hard tennis courts billiards tables and card tables and all the papers and periodicals imaginable

I managed to buy for £3 a very young foal of an ass on the mainland It was so small that I easily picked it up and carried it into the boat to bring it home It was never properly broken in it was always treated with kindness and well fed, with the result that my 3 year old son could go for a ride with his nurse in charge along the beach in perfect safety

In the hot summer months very few ships came to Port Royal so our patients were reduced to the soldiers of the garrison only mostly negroes We found them adept at malingering They would simulate gonorrhœa by introducing condensed milk into the urethra The ordinary methods of bed and

low diet suitable for the cure of white malingerers were useless for these bone lazy negroes. No doubt they managed to scrounge food by bribery and they were quite content to spend the rest of their lives in bed.

Our chief very considerately and sensibly evolved a programme of leave for the hot summer months which gave the wives three months on end at the hill station and for those three months one surgeon would spend four mid week days with his wife one week, and the next week the other surgeon would take his turn of four days in the hills while the deputy himself would come down from the hills for three days every week end. The climate in the hills was much the same as an English summer: one could play golf all day in comfort, but more violent exercise like tennis or cycling was carried out when the sun was low before breakfast or after tea.

About a year before my time was up a very severe epidemic of diphtheria broke out in the little overcrowded insanitary town just outside the hospital wall. It was my job to visit and treat children of the dockyard and hospital employers. There was no isolation hospital available. I saw my wife getting more and more anxious and worried lest our only child should, in spite of all precautions, become infected. In 1899 immunization had not been heard of, and the disease was much more virulent than it is now. I took passages for them in the next mail steamer to England and made all arrangements for their reception by cable; then at the last moment my wife refused to leave me. What a problem for us both!

I turned to my old man for advice. He promptly told my wife she was quite right to refuse to go to England and ventured to foretell that our son would escape infection with the precautions we were taking. The S.S. Company allowed us to postpone her departure until my time was up, although we had been delighted to get the appointment and enjoyed almost all our time at Port Royal; we were glad to leave. There were times when the calm air was too hot for comfort and when it rained for three days on end or one of those thunderstorms so violent that the house shook and rattled with each peal until one wondered whether this was the beginning of one of those earthquakes which had devastated the town and reduced it from a flourishing city with fine buildings and cathedrals to a squalid little town of negroes and half castes.

I have had many opportunities of watching the effects of the tropics on young white children and I am quite sure that both physically and morally they begin to deteriorate after the age of 4 or 5. They become anaemic and puffy under the eyes; they lose the natural energy of children of their age and unless they are isolated from the native servants are bound to imbibe some of the many moral failings of the black man or coloured gentleman, whether oriental or negroid.

Home Again

I had been abroad for four years and so had two months' leave due to me. We went at once to Post Bridge on Dartmoor and started fishing trout. But I read the news of the Boxer rising, the siege of Peking and the imminent departure of the troopship *Jelunga* with 1,000 marines to reinforce Admiral

Seymour's hard-pressed naval brigade at Tientsin. At this time it must be remembered that the desire of every officer and man in the navy was to get well into any little war that might be going for two reasons: (1) Love of adventure; (2) the hope of gaining special promotion.

War was then a very different experience to the war of the present day. Then it was akin to the hunting of big game, with the chance of glory and honour, fame and promotion. Indeed I cannot recall the special promotion of any medical officer for any other reason than gallantry or devotion to duty in action to which attention had been drawn by the executive officer in command. Promotion for professional skill and attainments in peacetime came very much later. For these reasons I wrote to the Director-General volunteering to sacrifice the leave due to me if I could be included in the naval brigade about to embark in the troopship *Jelunga* for China. I got a telegram in reply ordering me to do so. My wife strongly disapproved of my action, my father entirely concurred and approved.

(To be continued.)

TOMOGRAPHY

BY

Surgeon Commander D. R. F. BERTRAM, *O.B.E.*, R.N.

Tomography is a method of X-ray examination which may be defined briefly as sectional radiography, but has also been more elaborately defined by Andrews (1936) as follows:

"It is a method of roentgenographic projection of plane sections of solid objects. This may be effected by moving the point of the source of roentgen ray in one direction while the recording medium is moved in the opposite direction, the two being moved simultaneously and in constant ratio by means of a connecting system which rotates about an axis which lies in the plane of the section to be projected."

Tomography is therefore a method of examination which involves moving the tube in one direction while the film moves in the opposite direction at a proportional rate, the two being rotated about an axis in the plane which it is desired to radiograph. The effect of this is that one layer is constant in relation to the tube and the film and the shadow of every particle in that layer will continue to fall on the same point of the film. The movement of the tube will produce blurring of the image of points outside the plane.

Tomography has been referred to by several names, e.g. Laminography, planigraphy, stratigraphy, etc., all of which in practice mean the same thing.

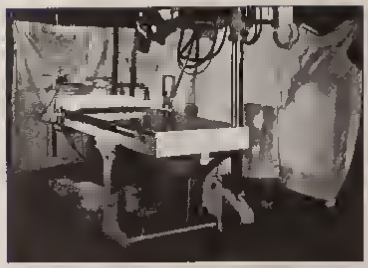
Since the discovery of X rays by Roentgen in 1895 continual steady progress has been made in the development of this aid to diagnosis, parallel with that

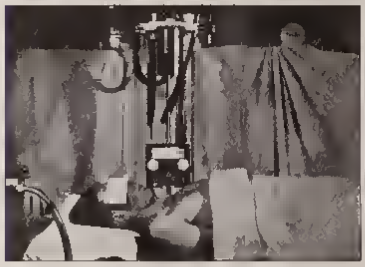
[illegible] and it is [illegible] to escape an X ray examination at some stage of [illegible] the investigation of their respective cases. The subject has [illegible] subdivisions in the field of radiography and [illegible] every organ of the body has been brought within its scope. Much of this progress has been directed to reproduction of the finest detail so that many [illegible] diseases have come within the scope of X ray examination. It might be [illegible] that progress has shown the greatest advance in the examination of the chest and this was rendered imperative after the formation of various [illegible] associations in England following the National Health Insurance Act of 1911, previously tuberculosis was mainly based on physical signs alone. Following the Great War of 1914–1918 considerable strides were made in the provision of X ray units as an aid to diagnosis and as a method of control following the reduction of artificial pneumothorax.

The development of tomography during the past fifteen years was directed particularly to thoracic investigation and has gradually become an accepted routine method of examination. Further application of this method has been found to be increasingly valuable in the elucidation of clinical problems related to the deeper bony structures, notably the vertebral column, skull, joints and elsewhere.

It has been said by the uninformed that tomography has little advantage over stereoscopy in the diagnosis of intrapulmonary pathology. The latter method will certainly give a greater degree of differentiation than the straight radiograph but free and isolated vision of different foci is only produced to a limited degree and furthermore the fact that a high number of people cannot see stereoscopically limits the practical value of this method which has never been very widely adopted in thoracic investigation.

Des Plantes of Utrecht and Bocage of France claim to have invented tomography in 1921 but it was not until 1931 and later that articles began to appear in the scientific journals which at first met with little enthusiastic comment from the Editors of the Year Book of Radiology. In 1935 Grossman of Berlin published an article on tomography which elicited only a grudging approval from the Editors of the Year Book and in 1936 the same volume comments: "This ingenious method has been described in the 1933 and 1934 Year Books of Radiology. It appears to have some value in a small field of applicability where other procedures fail." One of the first complete tomographic units in England was installed at Queen Mary's Hospital, Roehampton, and in the latter part of the third decade other units or adaptations to existing diagnostic units began to make their appearances. In 1937 Twining, of Manchester, designed an attachment for the X ray tube and film carrier which could be used as a tomograph when required. The cost of the early models was high but manufacturers all over the world have designed tomographic attachments for their own type of X ray apparatus which are relatively economical and easy to operate. (The tomographic attachment for the main diagnostic unit used in R.N. Hospital, Plymouth, is illustrated in figs. 1a and 1b.)





[illegible] —[illegible] illustrates the depth [illegible]

Tomography of the Chest

Early in the history of tomography its value in demonstrating lung pathology was recognized and this method of examination in chest conditions has become firmly established the position being summarized by Barton R Young in January 1942 who stated "It should be employed in every chest problem not solved by conventional methods"

The particular problem of examination of the chest is rendered more difficult by the presence of bony structures well formed muscles mammary glands etc and it is not often appreciated that the rib shadows cover approximately

[illegible] results in a [illegible] obstruction of the clear view of the intervening lung tissue. In order to overcome this obstruction more penetrating rays may have to be used and thus fine detail in the lung tissue is lost.

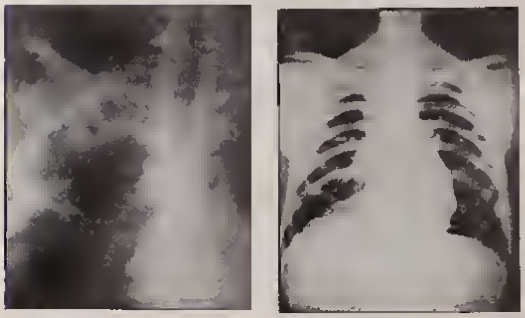
It is possible for the tomograph to demonstrate limited infiltration which cannot be demonstrated at all in routine radiographs taken with modern technique. Weinbren quotes the case of a third year medical student who, while doing bacteriology, stained his own sputum and found acid fast bacilli. He reported this but no clinical evidence of tuberculosis could be discovered though there was a history of a slight cough a year previously. Repeated routine X ray examinations demonstrated no pulmonary pathology though the sputum remained repeatedly positive. At last tomography of his chest was carried out and clear cut evidence of infiltration with cavitation was found in the second left interspace, an area which is frequently obscured by overlying bony shadows. (In fig. 2 a well marked Assmann's focus is seen in the tomograph which is not apparent in the large film.)

In cases of long standing tuberculosis infiltration, particularly of the apices, tomography will frequently demonstrate the presence of small cavities which had hitherto been unsuspected or at any rate not visualized by ordinary methods owing to the density of the infiltration or the overlying shadows and the knowledge that these cavities are present will help to establish the diagnosis and enable the clinician to assess prognosis more accurately. Two cases illustrating the foregoing remarks are reproduced, and the demonstration of

FIG. 2. [illegible] no indication of the [illegible] graph.

the cavities by tomography enabled the correct treatment to be instituted (figs 3 and 4) Hitherto particular attention has been paid to tuberculosis of the lungs but tomography may be utilized for the investigation of practically every type of pathology of the intrathoracic contents In pneumothorax of the spontaneous variety small empty cavitous bullæ may be demon

FIG 3 [illegible] se illustr[illegible] t-th[illegible] th left [illegible]



[illegible] large [illegible] not [illegible]

strated while the differential diagnosis between the [illegible] an interlobar effusion may be very difficult [illegible] are inconclusive In certain cases of malignant [illegible] the lesion not routine X ray examinations [illegible] means of tomography that the bronchial infiltration [illegible] demonstrated thereby assisting the diagnosis and the localization of the primary growth In cardiovascular diseases the aorta and pulmonary artery may be well demonstrated and localized enlargement of any one chamber of the heart may also be accurately assessed

Tomography of the Spine

The value of tomography in the X ray investigation of the chest has been stressed but this method of examination may play an even more important role in the investigation of the spine particularly in those parts which are normally difficult to demonstrate in routine radiographs the best example of this being the upper dorsal and lower cervical regions The whole of the dorsal spine is partially obscured by the lungs and in the lateral view may be only barely clearly seen by allowing the patient to breathe throughout the exposure thus simulating the tomographic effect but detail is still not clearly distinguishable particularly in the upper dorsal region Pantomography will however demonstrate minimal evidence of fracture the extent and degree of congenital variations and assist in the differential diagnosis of inflammatory conditions such as tuberculosis and osteomyelitis Assessment of consolidation in healing fractures is also more accurate if tomography is employed and Weinbren has stated that in case of a fractural spine ever leaves the Chamber of Mines Hospital at Johannesburg without being tomographed at one stage or another Where there is strong clinical suspicion of injury or pathology in any part of the vertebral column without confirmatory changes in the routine radiographs the use of tomography is strongly urged in order that the diagnosis and therefore the correct treatment may not be delayed It may be a considerable time after the onset of symptoms before frank radiological signs appear in cases of osteomyelitis or tuberculosis and it is only by the use of tomography that early bone necrosis can be established The most conclusive views are usually those taken in the lateral position but oblique and A P views are also of great value Although the use of tomography has been stressed in the case of the dorsal spine it is of course equally valuable in the study of the remainder of the spinal column and of the sacro iliac region where the obliquity of the sacro iliac joints makes detailed examination by ordinary methods extremely difficult The differential diagnosis between a Schmorl's node and a secondary malignant deposit in a lumbar body may be extremely difficult to distinguish without the benefit of detailed examination by tomography

Tomography of the Skull and Facial Bones

The configuration of the skull and the complexity of the facial bones renders tomography of the whole region extremely difficult in particular when endeavouring to localize an area of calcification in to assess the extent

of depression in a fracture of the vault Examination of suspected cases of tumour of the eighth nerve is simplified by the use of tomography, and the extent of a tumour of the pituitary fossa may be fairly accurately determined Tomography may also be helpful in cases of mastoid pathology and a great deal of information may similarly be obtained in cases of paranasal sinusitis In the latter field opaque shadows having a convex upper margin are frequently seen in an antrum which is otherwise clear and the differential diagnosis between congenital variations in the antrum or a polyp will be simplified Tomographic projections of the frontal region will readily demonstrate the presence and extent of osteoma of the frontal sinus the nature of which may otherwise be somewhat obscure The difficulty in demonstration of fractures of the facial bones is well known and the importance of recognizing the degree of displacement if any is well appreciated by all radiologists particularly in non operative patients Such cases are considered to be extremely suitable for tomographic examination and also cases referred for examination of the temporo mandibular joints which can be well demonstrated by this method Tomography will enable true lateral views of the mandible to be taken and this may be of importance in demonstrating the relationship of cysts to neighbouring teeth and the same applies to cystic changes in the upper jaw In these areas the demonstration of sequestra in cases of osteomyelitis may be made with much more detail than by routine methods

Tomography of Miscellaneous Regions

The uses of tomography so far described have been those most commonly practised but the method can be further extended to other regions of the body in particular to injuries in the region of the sternum and to joints of the extremities where the demonstration of pathology by routine view may be unsuccessful especially in cases of hip joint pathology or injuries in the region of the hip joint where it is necessary to report whether or not the acetabulum is involved In the region of the knee joint the vexed question of the differential diagnosis between multipartite and fractured patella may be settled more easily by the use of tomography Small areas of erosion of the joint surfaces which may be one of the earliest signs of tuberculous infection are often missed in routine radiographs until the disease has become advanced but these areas can be seen on the tomograph at an early stage in their development Tomography has also been applied in the examination of the kidneys during intravenous pyelography and has been found most valuable in tumours of the larynx it has also been used in association with perirenal insufflation for the demonstration of the suprarenals

Sufficient has been said to illustrate the uses of tomography and to indicate the wide field which may be covered particularly when the clinical findings and routine radiographic results do not agree, apart from those cases of tuberculosis and obscure pulmonary pathology due to other causes, which it is considered should all undergo routine tomographic examination

Technique

It is not proposed to enter into detail regarding the technical procedure

in this [illegible] of radiography as all information of this nature can be gained by reference to the standard textbooks The positioning of the patient does not differ from that in routine radiography of the same part In order to minimize the number of films used screening and routine radiography will give the approximate depth of parts or lesions to be tomographed The measurement of depth should be made from the table top upwards and therefore it is important to use a table which does not sag as this would obviously cause a considerable error in depth measurement The part to be examined must be immobilized as much as possible as movement will cause blurring as in the case in routine radiography The thickness of the cross section varies with the extent of the arc described by the tube i e the greater the arc the thinner is the layer and conversely so that with the tube immobile the section reproduced will comprise the whole thickness of the part under examination The average installation can be adjusted to produce cuts at 1 centimetre intervals but certain more elaborate machines can be adjusted to half centimetre cuts In cases of extensive chest pathology it is the practice in this hospital to survey the area by cuts every 2 centimetres and after examination of the wet films further cuts at 1 centimetre depth are made where necessary In follow up cases the position of the lesions under review is known and therefore fewer films are used The direction of the tube movements should be across the predominant lines of the part being tomographed where the construction of the tomographic device permits

Summary

The purpose of the foregoing article has been to stress the value of tomography in all cases of obscure pulmonary pathology with particular reference to the assessment of the extent and severity of pulmonary tuberculosis In addition the use of tomography in other regions of the body has been emphasized No exaggerated claims for tomography are made and the indiscriminate use of such apparatus is to be deprecated as it is not a substitute for routine X-ray examination but rather an aid to the elucidation of problems which are otherwise obscure The problem of expense which at one time was considerable has been practically halved by the manufacture of simple apparatus which can be attached to main diagnostic units and an intelligent approach to the case will minimize the large number of films which might otherwise be used It has been proved that the plain radiograph is not infallible and it is considered that it should not be used as the final arbiter of a patient's destiny but the judicious use of tomography should minimize fallibility in cases of pulmonary tuberculosis and may prove to be a useful corrective to early erroneous opinion

The author wishes to thank Surgeon Rear Admiral W J Colborne, F R C S L R C P K H S for permission to publish this article and also S B C P O R G Hesp M S R for his assistance with the reproduction of the plates

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Clinical Notes and Cases

THREE CLINICAL NOTES

BY

Surgeon Commander D D STEELE PERKINS, R N

A PERICASTRIC ABSCESS

(X-ray Illustration)

[illegible] Officer Stewart [illegible] aged 48

[illegible] 3rd September 1948 this patient [illegible] [illegible] tra[illegible] [illegible] and was sent [illegible] treated [illegible] [illegible] [illegible] into hospital on the 8th September 1948

On [illegible] temperature [illegible] 100 and pulse 84 [illegible] pain in epigastrium and [illegible] [illegible] and pulse 86

[illegible]

[illegible]

[illegible] had a high fluctuating [illegible] pulse remained fairly [illegible] [illegible] 1938 a mass became palpable [illegible] [illegible] gastric cancer, large mass displacing [illegible] [illegible] rheumatism or other rheumatic [illegible] [illegible] through an [illegible] [illegible] [illegible] 34 [illegible] [illegible] [illegible]

Clinical Notes and Cases

THREE CLINICAL NOTES

BY

Surgeon Commander D D STEELE PERKINS, R N

A PERIGASTRIC ABSCESS

Case History

[illegible] Steward aged 48

[illegible] 3rd September 1948 this patient while at [illegible] suddenly and severely [illegible] [illegible] 8th September 1948 [illegible] temperature of 100 and pulse 84 [illegible] [illegible] and nausea [illegible] temperature [illegible]

[illegible]

[illegible] fluctuating [illegible] remained fairly [illegible] During this period he had [illegible] 1948 a mass became palpable in the [illegible] signs of a large mass displacing the [illegible] evidence [illegible] was larger and [illegible] By the [illegible]

On [illegible] the 20th September [illegible] presented and through the [illegible] pressure. The [illegible] pathological fracture. [illegible]

The [illegible] Fully [illegible] in the organ into [illegible] the upper [illegible]

[illegible]

PATHOLOGICAL FRACTURE OF A LEFT PATELLA

By [illegible]

[illegible]

[illegible] Hospital was sent for [illegible] R.N. Hospital Bagh in September 1948 with the history that [illegible] previously whilst at work in H.M. Dockyard he had slipped but [illegible] that of [illegible]. At the [illegible] left shoulder pain in the [illegible] Subsequently pain [illegible] work

[illegible]

[illegible]

[illegible]

Nu[illegible] 28th S[illegible] 1948 app[illegible] was not [illegible] had colu[illegible] all [illegible] [illegible] W[illegible] [illegible] [illegible] etc. all [illegible]

A gland [illegible] about 2 [illegible] sent for [illegible] [illegible] [illegible]

Skin

D

[illegible] 1 12 48 *Abdomen*—The left kidney is displaced [illegible] is displaced [illegible] Recommend [illegible]

[illegible] 1 12 48 *Intravenous Pyelography Contd*

[illegible] is displaced downwards its lower [illegible] [illegible] size No stone shadows are shown in kidney [illegible]

[illegible] from both kidneys [illegible] logy [illegible] normal cystogram

X ray [illegible] 8 1 48 *Barium Meal*

The [illegible] the stomach is normally [illegible] placement [illegible] right and the fundus [illegible] of [illegible] and duodenum There is a [illegible] spinal [illegible]

CONCLUSION

Findings [illegible] the presence of a large mass in the [illegible] causing displacement of stomach and colon

X ray Report 3 1 4 1 *Chest*

There is no evidence of pulmonary pathology

Ward Urine Report—N A D

Transferred to surgical ward 7 1 49 when examination showed a tender smooth mass in the left hypochondrium This was thought to be in the light of the history an enlarged spleen sq a rupture

Operation 10 1 49—upper left paramedian incision abdomen Spleen presented on examination was grossly enlarged and appeared to be a cystic [illegible] It was not adherent to any other structure Aspiration removed rather more than 2 pints of brownish fluid The spleen was then removed The cavity was dried and the wound closed

Pathology This would appear to be a rupture or haemorrhage from the spleen into the gastro splenic omentum The patient made an uninterrupted recovery

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A CASE OF ACUTE QUININE POISONING

BY

Surgeon Commander B S LEWIS, *D.S C.* R N

QUININE has now been discovered and employed for more than 300 years and is widespread and common use for a third of that time so when a young lady was admitted to the Royal Naval Hospital Haslar having unwisely taken a considerable amount it was surprising to find how varied were the estimates as to the dosage necessary to achieve mors and also as to whether a fatal would survive unknowing a large dose of a general protoplasmic poison

CASE HISTORY

[illegible] was a married girl aged 19 and three months pregnant She had [illegible] presumably [illegible] [illegible] [illegible]

[illegible] hour [illegible] con[illegible] 88 [illegible] was [illegible] comp[illegible] clinic[illegible] wise [illegible] Then [illegible] table [illegible]

By each [illegible] morning [illegible] was slight [illegible] final acute [illegible] revealed [illegible] abnormal [illegible] specialist [illegible] (1) Pyrexia [illegible] above (2) Tachycardia [illegible] hyperpyrexia [illegible] rheumatism (3) [illegible] Right [illegible] improved [illegible] pyrexia and not far short of normal [illegible] her pregnancy proceeding normally.

Discussion

Research into the records of the [illegible] on other cases and the clerk in charge of the [illegible] in his twelve years' service. Since 1930 however the female patients in under the care of this hospital has greatly increased.

Quinine which is extracted from cinchona bark came originally from Peru in Western South America but is now distributed in Java and India. Its properties were revealed to the Spaniards by a native of the district where it grew though it is doubtful if they were generally appreciated by the inhabitants. It achieved its most striking early success in the case of the Countess of Chinchon wife of the Viceroy of Peru who suffered severely from fever and was cured by the administration of cinchona bark by the court physician. The botanical name cinchona was invented by Linnaeus the native Indian name being quinquina kina kina and cinchona. It was mainly used for the treatment of intermittent fevers for many years but in the middle of the nineteenth century it came into vogue in Europe and somewhat later in this country and the U.S.A. as a treatment of acute rheumatism. In this connexion it was used in heroic dosage and gave rise to the first recorded cases of poisoning.

At this time many believing in the harmlessness of quinine administered it in doses from 30 to 180 gr. a day. A fatal case occurred in a child aged 6 years after two doses of 4 gr. with a three-hour interval between them. In France 90 gr. a day were individually used in acute rheumatism and cases were cut short rapidly though patients might remain deaf and blind for a long period. One case of acute rheumatism aged 26 years was treated with 46 gr. on the first day and 77 on the second but unfortunately became delirious and died in a few hours. One further case is of interest that of a girl aged 1 years in the U.S.A. who was given a total of 58 gr. spread over two days and who went blind and died three hours later. Mishaps of this kind appeared to have been very unusual however even with this enormous dosage and indeed Woodman and Tidy of the London Hospital stated that up to 120 gr.

[illegible]

[illegible]

[illegible]

Findings [illegible] suggesting displacement of [illegible]

X-ray Report 3 1 49 *Chest*

There is no evidence of pulmonary pathology

Hard Urine Report —N A D

Transferred to surgical ward 7 1 49 when examination showed a tender mass in the left hypochondrium This was thought to be in the light of the history an enlarged spleen sec a rupture

Operation 10 1 49 upper left paramedian incision abdomen Spleen presented on examination was grossly enlarged and appeared to be cystic alive It was not adherent to any other structure Aspiration removed rather more than 2 pints of brownish fluid The spleen was then removed The cavity was dried and the wound closed

Pathology —This would appear to be a rupture or haemorrhage from the spleen into the gastro splenic omentum The patient made an uninterrupted recovery

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CASE HISTORY

[illegible] was a married woman aged 19 and three months pregnant She had taken [illegible] presumably to rid herself of this unwelcome fœtus [illegible]

[illegible] hour later and [illegible] Intuition her [illegible] pulse 88 regular respiration [illegible] 110/60 She [illegible] what comatose She was [illegible] voice but was [illegible] pupils full [illegible] There was no other [illegible] continued 7 R B C [illegible] per c c field and was other wise [illegible] not was R B C 4 100 000 Hb 86 W B C 18 600 C T 0 97 [illegible] in the fœtus

By [illegible] pupils contracted to light though not fully Amaurosis was slight [illegible] appearing normal and a further clinical examination revealed [illegible] The fœtus was apparently unaffected The ophthalmic specialist [illegible] Both discs showed well marked loss which is chiefly above (2) [illegible] engorgement of central retinal veins (3) Slight compound hypermetropic [illegible] Vision with [illegible] Right [illegible] Both discs showed [illegible] She was discharged [illegible] weeks after admission with her pregnancy [illegible]

Discussion

Research into the records of the past 60 000 patients in the hospital revealed no other case and the clerk in charge of the records could not recall another in his twelve years' service Since 1939 however the female population under the care of this hospital has greatly increased

Quinine which is extracted from cinchona bark came originally from Peru in Western South America but is now also cultivated in Java and India Its properties were revealed to the Spaniards by natives of the district where it grew though it is doubtful if they were generally appreciated by the inhabitants It achieved its most striking early success in the case of the Countess of Chinchon, wife of the Viceroy of Peru who suffered severely from fever and was cured by the administration of cinchona bark by the court physician The botanical name cinchona was invented by Linnaeus the native Indian name being quina quina kina kina and variants It was mainly used for the treatment of intermittent fevers for many years but in the middle of the nineteenth century it came into vogue in France and somewhat later in this country and the U S A as a treatment for acute rheumatism In this connexion it was used in heroic dosage and gave rise to the first recorded cases of poisoning

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in the day might be given in the tropics without bad effects and it may be doubted if death has ever resulted from quinine alone. It was also noted in these cases that abolition or permanent damage to sight and hearing were very rare. In modern times Cushney records a case where 4 oz. were swallowed with confusion and ringing in the ears as the only sequelæ, and Martindale records a death following the ingestion of 48 gr. tablets and another following a total of 90 gr.

There is no specific treatment for the condition of quinine poisoning; symptomatic measures following the usual efforts to minimize retention of the poison being indicated. Dr. Charcot is recommends that blindness should be treated with acetylcholine and atropine in the belief that it is due to arterial spasm.

My thanks are due to Surgeon Rear Admiral F. G. Hunt for permission to publish this case.

AN UNUSUAL SKIN LESION

BY

Surgeon Commander B. S. LEWIS, R.N.

Case History

R. W. D., Petty Officer (A).

R. parted for medical examination for discharge (twelve years).

H.P.C.—Received kick in the right groin two years ago, which he states started a small nodule which increased to its present size in the course of about one year. For the past [illegible] it has been quiescent. There has never been much irritation.

On Examination.—A large area of scarring was found extending from the base of the penis about 6 in. all round the scrotum, pale and soft with few hairs. The margin was infiltrated in parts and had been ulcerated and there were a number of purplish coloured papules in the outer part of the lesion.

The edge was undermined in places but mostly only slightly in normal skin. There were detached areas similarly affected and no gland was seen in genitalia. Scrotal skin and basal penis were both involved.

It was considered that the diagnosis lay between a tuberculous or syphilitic condition and W.R. and P.P.R. tests were done and a portion was sent for section.

X-ray Chest.—W.R. *R.* +ve 1/8. *P.P.R.* +ve 1/8.

Section (Preliminary Report).—Histologically this shows chronic inflammation with considerable infiltration of the corium by round cells with a fair number of plasma cells. The appearances suggest syphilis. Treponemata could not be found.

Brilliant Extract from Report of Dr. W. Woods of the London Hospital

[illegible] cannot give you a diagnosis but it does not suggest a syphilitic lesion [illegible] In the lymph vessels, hair follicles, sweat glands, etc. There are areas of [illegible] with lymphocytes and plasma cells and slight proliferation of fibroblasts. [illegible] very few very small nodules of epithelioid cells. One thinks of lupus, [illegible] leishmaniasis, leprosy. But it is really not characteristic of any of these diseases.

Not the least intriguing aspect of this case is the fact that neither the man, his wife

[illegible]

An [illegible]

My thanks [illegible] Surgeon Rear Admiral [illegible]

A CASE OF REGIONAL ILEITIS (Crohn's Disease)

BY

Surgeon Commander G. PHILLIPS, R.N.

Case History

A Petty Officer aged 27.

This patient was admitted to R.N. Hospital, Plymouth, in September 1948. For the past three years he had been complaining of right sided abdominal pain. The pain was intermittent and was often accompanied by vomiting and constipation followed by some diarrhœa. The patient was discharged from the Navy because of ill health, though he had lost a stone in weight over the period.

He gave a history of having been investigated in three different hospitals—a military hospital, a civilian hospital and also in this hospital. On referring to the notes of his case when he was a patient in this hospital in October 1947, the following investigations were seen to have been carried out:

A complete blood examination, examination of the stools for blood and parasites, a barium meal follow through and enema. The only findings of significance were a positive test for occult blood followed by two negative tests and the presence of trichomonas of 12,000. Clinically a mass had been noted in the left iliac fossa which had been disguised by an enema given in preparation for a sigmoidoscopy. The sigmoidoscopy showed no abnormality and the patient had been discharged from hospital in [illegible]

1947 with a diagnosis of chronic constipation and spastic colon. He had been ordered to start on a three monthly intervals for follow up.

The patient's symptoms still continued to give him trouble and he was again admitted to R.N. Hospital Plymouth in September 1948. It so happened that the genito urinary specialist first saw the patient and naturally arranged for a pyelogram to be taken. The picture of the left bladder was strangely reclining and was actually reported upon as showing a remarkably irregular outline with an indentation of the fundus such as would be produced by extrinsic pressure. The writer first saw this patient on 26th September 1948 and the notes on clinical examination of the abdomen read: "There is a peculiar but quite definite emptiness in the right iliac fossa. A soft mobile mass the size of a fist can be felt in the mid line below the umbilicus. The mass can with ease be pushed over and made to fill the void in the right iliac fossa." Since this patient has already been investigated three times without result laparotomy should be carried out.

At laparotomy the last two feet of the ileum showed the gross thickening characteristic of Crohn's disease. The caecum and appendix were normal. It was decided to carry out resection at a later date. For various compassionate reasons operation was delayed till 14th January 1949 when the last 22 feet of the ileum and the caecum were resected and an anastomosis between the end of the small gut and the ascending colon formed at one stage. The patient made a very smooth recovery and was discharged to work leave 3rd February 1949. He was last seen in October 1949. He had remained perfectly symptom free since operation. His abdomen was normal and his only complaint was that he had put on rather too much weight.

The excised gut showed gross thickening of the wall at the expense of the lumen and the sufferers that the patient's obstructive symptoms were even more severe. At the time of operation the ileum was struck by the gut to be full, the affected bowel weighed 750 grms. —not so much as had caused a depression in the bladder outline as noted on by the radiologist. The narrowing of the lumen of the ileum is due to a thickening of the submucosa due to infiltration of its lymphatic drainage from some inflammatory cause. Both macroscopically and microscopically the condition is very similar to hyperplastic ileocaecal tuberculosis and it has been suggested that the two conditions were one and the same. It is now held that the inflammatory agent is most probably a virus affecting the mesentery of the liver ileum. Extension of the disease at its loci take place in a proximal direction and not into the large bowel.

It seems that Crohn's disease is difficult to diagnose except by laparotomy.

I am indebted to Surgeon Rear Admiral W. J. Colborne F.R.C.S., K.H.S. for permission to publish this case.

REFERENCES

British Journal of Surgery 1945
Medical Annual 1947

Reviews

[illegible] By J. A. Smithers, M.B., M.R.C.P., [illegible] Medical Officer of Health [illegible] Pp. [illegible] 380. [illegible] Price 6s. 0d.

This book presents the familiar appearance of a volume in the [illegible] series. Its paper and print are pleasing, and the latter is of satisfactory [illegible] component parts of sanitary science and law are well and concisely [illegible] without encumbering to telegraphic style.

Much up to date information is given, including a short chapter on the National Health Service Act 1946 and a page devoted to the Children Act 1948. The book can be regarded as wholly reliable and is recommended as adequately fulfilling the purpose for which it is written. It is one of the best of the Student's Aids Series.

OPERATIVE SURGERY. By Frederick C. Hill, B.A., M.S. (Surg.), M.D., Associate Professor of Surgery, The Creighton University School of Medicine, Omaha, Nebraska. First Edition. 1949. Pp. 198 with 255 plates and illustrations. Supplied by Geoffrey Cumberlege, New York. Oxford University Press. Price 100s.

This beautifully produced book on operative surgery differs very much in its layout to other contemporary books of the same subject. The operations described are those the author found to be most satisfactory in his own experience of general surgery and highly technical details of procedures in the more specialized fields of surgery have been omitted.

His practice in most cases corresponds to the national procedures in Britain and gives a senior student or young graduate a very good pattern of the operative technique followed in most cases but omits detailed technicalities. The surgical treatment of rectal prolapse is very lightly touched on and not in line with current practice in the United Kingdom.

The headings are excellent and most of the subject is handled with brevity and decisiveness that leaves the reader in little doubt what the author considers to be the best course to adopt. In each section a description of the macroscopic appearance of the surgical lesions is given. Nothing unnecessary is included in the text and controversy has as far as possible been avoided.

In all this is a readable, concise, extremely readable book which will be of great value to any student wishing to cover the whole subject of Operative Surgery and avoid being side tracked into a particular realm of the art.

SIGHT, LIGHT AND EFFICIENCY. By H. C. Weston, F.I.L.S., Medical Research Council Industrial Health Research Board. 1949. Pp. xiv + 318, with 132 illustrations, 13 of which are coloured. London: H. K. Lewis & Co. Ltd. Price 42s. 0d.

This book has been written with a view to providing a clear account of the problems of illumination in industry. These problems concern ophthalmologists, industrial medical officers, medical officers of health, lighting engineers and architects as well as other professions, and this book is intended for the needs of all. The author has succeeded in his most difficult task. He has produced a most readable and broad work which includes a minimum of those complicated graphs and mathematical formulae which tend to discourage the non technical reader. The printing and illustrations are excellent. Industrial authorities are acutely aware of the importance of adequate illumination in the avoidance of fatigue and increase of output. This volume will help to solve the problems which may arise, and it should be read and kept in ready reference by all who are concerned with illumination and visual hygiene.

[illegible]

[illegible]

[illegible]

In Part I [illegible] the health [illegible] the immun[illegible] [illegible] failure of [illegible] wards and th[illegible]

Part II [illegible] is maint[illegible] considerati[illegible] and indust[illegible]

Freq[illegible] Britain and A[illegible] in the l[illegible] posts of r[illegible] workers

PHYSICIAN [illegible] By Sir [illegible] 1949 [illegible] Hodder & S[illegible]

It is [illegible] Sir Gilbert Bl[illegible]

Miss Murr[illegible] early nine[illegible] squalor of the [illegible] the high mortality [illegible] ministerial pace [illegible] of the flesh was the [illegible] epidemic form and deal[illegible] and preventive principles [illegible] wars and campaigns w[illegible]

Fiction and biography [illegible]

The omission of such [illegible] early London career of Bl[illegible] James Lind or of his [illegible] of that oft mentioned [illegible] Board of Sick and W[illegible] day—does not seriously [illegible] interesting, reading, and [illegible] important calf love [illegible]

The book gathers [illegible] embraces the physician [illegible] we observe the good [illegible] his labours as well as [illegible] very good sense [illegible]

This book should [illegible] interested in works [illegible]

THEORY AND PRACTICE [illegible] Mathematics By [illegible] Copestake Seventh Edition [illegible] 424 [illegible] London H. K. Lewis & Co. [illegible]

Although this textbook [illegible] prove a useful addition [illegible] physiotherapy

The early chapters [illegible] Some chapters dealing [illegible] added or rewritten [illegible] professional [illegible] The chapter on [illegible]

classes [illegible] many wards of our hospitals It is felt that the statement to postpone further physical treatment other than breathing until after removal of stitches in post [illegible] abdominal cases is perhaps a little conservative The chapter on Respiratory Diseases has been enlarged this the student should find most helpful to cope with the growing demand for physiotherapy in chest conditions Physical treatment before and after childbirth has been usefully summarized in the closing chapter

Illustrations dealing with medical gymnastics have been renewed in this edition Better use has been made of photographic technique of contrast resulting in much clearer plates Many new illustrations have been added with benefit and few deleted

That seven editions have been published proves that it has stood the test of time This can probably be attributed to the fact that the concise nature of its context and the clarity of style is appreciated by students preparing for examinations

We acknowledge with thanks receipt of the following publications

Anales de la Facultad de Medicina de Montevideo Army Medical Services Magazine Australian Journal of Experimental Biology and Medical Science British Journal of Surgery British Medical Journal The Broadway Bulletin of Institute of Marine & Tropical Medicine Bulletin International des Services de Sante Chronicle of the World Health Organisation Clinical Journal Current List of Medical Literature De Militaire Spectator Guy's Hospital Gazette Hospital Corps Quarterly Journal of the American Medical Association Journal of the Bowman Gray School of Medicine Journal of the Indian Army Medical Corps Journal of the Medical Association of Eire Journal of the Royal Army Medical Corps Journal of the R N Sanitary Service London Hospital Gazette Medical Journal of Australia Medical Times Middlesex Hospital Journal Military Surgeon Proceedings of the Staff Meetings of the Mayo Clinic Revista de Medicina Aeronautica St Thomas's Hospital Gazette Tropical Diseases Bulletin United States Naval Medical Bulletin University of California Publications in Pharmacology & Physiology University of Durham Medical Gazette West London Medical Journal

News of the Service

INTER-HOSPITAL TENNIS

THE first Inter hospital Tennis Match was held on 23rd August 1949 at the Royal Naval Hospital Plymouth The honours deservedly went to the the Royal Naval Hospital Haslar with the Royal Naval Hospital Chatham, second and the hosts third

The weather was kind and it was a perfect day for tennis with no wind and the sun not too bright The courts were as good as they have been since the war but have not yet fully recovered from enemy action

Some anxiety was felt as to whether it would be possible to finish the match in one day, since six singles and nine doubles matches each consisting of the best of three sets had to be played on three courts Matters were not accelerated by some rather drawn out photography before the start of play and by the Haslar team arriving one man short By some tremendous organization, however Haslar's sixth man was flown in in time to play after lunch That all the matches finished by 1800 was due to the untiring efforts of Instructor

Lieutenant Commander [illegible] had been impressed to act as referee. He kept every one on their toes, and [illegible] evident that he was an old hand at running tennis tournaments. It is difficult to comment on so much keen tennis. Three things stood out in the day's play, the excellent tennis of Haslar's first singles player, the dogged determination of Plymouth's first pair in beating Haslar's first pair long after the final issue was no longer at stake, and the form of oriental headgear worn by Chatham's third pair.

There was tea on the lawn during the afternoon and Surgeon Rear Admiral W. J. Colborne, K.H.S., presented medals to the winning team. The players were sufficiently refreshed to attend a dance given in the Sick Berth Staff Quarters that evening.

We are looking forward to next year's match.

Teams	
R.N.H. Haslar	Surg. Lieut. Marley S.B.C.P.O. Taylor
Won 7 matches Lost 3	S.B.C.P.O. Edwards S.B.C.P.O. Williams
	Surg. Lieut.-Cdr. Wallis S.B.A. Gilbertson
R.N.H. Chatham	L.S.B.A. Bailey S.B.A. Riley
Won 5 matches Lost 5	S.B.C.P.O. Bowers S.B.C.P.O. Stockton
	Surg. Lieut. Cdr. Weston Surg. Lieut. Cliff
R.N.H. Plymouth	S.B.C.P.O. O'Donnell S.B.P.O. Vaughan
Won 3 matches Lost 7	Surgeon Commander Phillips Surgeon Commander Bertram
	S.B.P.O. Shave S.B.A. Richmond

OBITUARY

We regret to report the following deaths and extend our sympathy to their relatives.

ROBERT MILNE, Consultant Surgeon to the London Hospital and Consultant in Orthopaedics to the Royal Navy, died suddenly on 28th September (whilst on holiday) in his 68th year.

The son of a doctor he covered his earlier scholastic career with outstanding distinction and won many prizes and scholarships. It often happens that such early brilliance is followed by post-graduate mediocrity, but not so in the case of Robert Milne.

In 1904 he graduated M.R.C.S., L.R.C.P. Lond., and in the following five years he added to his name the M.B., B.S. Lond., F.R.C.S. Eng., M.D. Lond., and M.S. Lond.

[illegible]

[illegible]

[illegible]

V[illegible] / [illegible] Notes

[illegible] 1881 [illegible] the 8th [illegible] served [illegible] 1881 September [illegible] January 1873 [illegible] R.N. Medical Service [illegible] Mar 1899. He was [illegible] in Mar 1907 Surgeon [illegible] Mar 1915 and was [illegible] the 14th October 1919 [illegible] World War Surgeon [illegible] on board H.M.S. *Cyclops* H.M.H.S. [illegible] and *Acorapart* [illegible] Admiralty.

[illegible] EDWARD KENNEDY [illegible] 1869—died Mar[illegible] October 1949. Mr [illegible] entered the Medical Department [illegible] Admiralty on 2nd September 1878 [illegible] Second Division Clerk [illegible] bank of Staff Clerk [illegible] Staff Clerk in Charge [illegible] 8th May 1919 which [illegible] Service. Mr Kennedy [illegible] Chief Clerk of Medical Department [illegible] the period of the Great War and as such was responsible [illegible] organization [illegible] the [illegible] administration [illegible] was sought and [illegible] Director General, under whom he served [illegible] the many medical offices of the Department with which [illegible]

HONOURS AND AWARDS

Posthumous Mention in Despatches

Surgeon Lieutenant J. M. Alderton, M.B., B.S., R.N., H.M.S. *Amethyst*.

Mention in Despatches

Surgeon Commander W. B. Taylor, L.R.C.P. & S., L.D.S., R.N., H.M.S. *London*.
Surgeon Lieutenant W. L. Owen, M.B., Ch.B., R.N., H.M.S. *Black Swan*.

DEGREES

Surgeon Commander J. L. S. Coulter, *D.S.C.*, R.N., was called to the Bar by Gray's Inn on the 17th November 1949.

PROMOTIONS

Promoted to Acting Interim Surgeon Commander
Surgeon Lieutenant-Commanders R. W. Duncan, L. H. Dathie, R. I. Lambert, I. B. Martin, J. H. Mitchell, K. J. O'Connor, P. J. O'Meara.
Promoted to Surgeon Lieutenant Commander
Acting Interim Surgeon Lieutenant Commander A. O'Connor.
Promoted to Surgeon Lieutenant-Commander (D)
Acting Interim Surgeon Lieutenant Commander (D) A. Simpson, W. L. A. Watson.
Promoted to Acting Interim Surgeon Lieutenant Commander
Surgeon Lieutenants R. R. B. Baxendine, P. A. H. Clements, J. M. Hanson.
Promoted to Acting Interim Surgeon Lieutenant Commander (D)
Surgeon Lieutenant (D) L. B. C. Cliff.

ENTERED FOR SHORT SERVICE COMMISSIONS

N. C. R. Davies, M.B.C.S., L.R.C.P., J. T. H. Greta, B.M., B.Ch.

RETIREMENTS

Surgeon Captain J. F. M. Campbell (age). Surgeon Commander C. H. Burt (granted Wound Pension). Surgeon Captain (medically unfit). Surgeon Commander W. M. Greer (medically unfit).

Surgeon Captain (D) A. D. McHaffie (age). Surgeon Commander (D) A. A. Gardner (medically unfit). Surgeon Commander (D) A. W. Wallace (own request). Surgeon

Lieutenant [illegible] (P) [illegible] Knight (medically unfit) [illegible]
Holmes (medically unfit)

WITHDRAWALS

Surgeon Lieutenant [illegible] Chapman with been from [illegible]
[illegible] request

Surgeon Lieutenant [illegible] Clout withdrawn [illegible]
[illegible]

ADMIRALTY FLEET ORDERS

3554.—Courses—Sick Berth Staff—Laboratory Assistants—Course of Training as Specialists

(N 2/M D G 18880/49.—21 Oct. 1949.)

[illegible] Sick Berth Ratings as Laboratory Assistants are to be as follows:—

R.N. Medical School, Alverstoke	1 months
R.N. Hospital	4 months

3649.—Eyesight—Night Vision—Tests

(M D G 11773/49.—28 Oct. 1949.)

Night Vision Tests are in future to be limited to those at the earliest possible stage [illegible] Executive Officers and Seaman and Signal Ratings only. No further [illegible] [illegible] taken unless there is a definite indication of incapacity. [illegible] [illegible] [illegible] officers [illegible] [illegible] as soon as possible.

(C I F O 74/46.)

Medical—Examination and Sickness of Officers—Medical History Documentation and Procedure

(*vide* A F O 3854.)

3886.—Passage—Classification of Invalids for Embarkation

(M D G 17098/49.—18 Nov. 1949.)

In future, when application is made for passage of invalids, the same method of classification for *embarkation* will be used by the Three Services, viz.:—

Class X. These invalids requiring special hospital accommodation on the ship (all long cases).

Type—Pulmonary tuberculosis cases.

Type—Cases requiring observation or treatment in a mental hospital or in the mental block of a Naval Hospital.

Type—Special medical cases requiring special treatment.

Class B. Those invalids who can be treated in the ship's accommodation and who are able to look after themselves.

N.B. Invalids returning to the United Kingdom after long service, being granted a [illegible] service only will not be classed as invalids and will be accommodated as ordinary civilian passengers.

3890.—Ratings—Sick Berth Ratings—Admission to Final Examinations of the General Nursing Council

(M D G 21177/49.—18 Nov. 1949.)

The requirements of the General Nursing Council for admission to the Council's Final Examinations, in far as they concern Sick Berth Ratings, will be three years' training in R.N. Hospitals for all ratings, the commencement of training on or after 1st January 1949. The training must be continuous.

2. In regard to Sick Berth ratings who commenced training before the date, the nursing experience of Sick Berth ratings is considered in the Medical Division. General will continue to be accepted by the Council for examination purposes.

(*A F O 3780/49 is cancelled.*)

3957.—Aviation—Central Air Medical Board

(C.W. 11528/49.—25 Nov. 1949.)

The Central Air Medical Board is situated in the Royal Naval Hospital [illegible] Salisbury. It consists of [illegible] medical officers, the senior of whom is [illegible] rank of Surgeon Rear-Admiral Commander in charge.

2. The functions of this Board are as follows:

(a) Examination of all new entry personnel for flying. (A.L.O. [illegible] Section II, paragraph A.)

(b) The examination of flying personnel from Naval Air Stations [illegible] to the Board to assess temporary and permanent [illegible] in accordance with A.L.O. 3175/49 Section VI, [illegible] and A.L.O. 379/49.

(c) Collaboration with the President of the Naval Air [illegible] Board under the terms of C.A.L.O. 379/49 and A.L.O. 3175/49.

(d) Discussion on practical aspects of Aviation Medicine during the course of the Medical Officers and Sick Berth Ratings in [illegible] and the Air Medical School, Royal Naval Air Station, Gosport.

(e) The examination of personnel for night vision and colour tests.

(f) Collaborating in such investigations ordered by M.D.G. or the Director, Air Medical Research, with the Air Medical School, R.N.A.S. Station, Gosport, when necessary.

3. It is not the function of the C.A.M.B. to initiate action under C.A.L.O. 379/49 or A.L.O. 3175/49 in the case of the [illegible] of the Commanding Officer.

4. The [illegible] that the Air Medical Board is responsible to the Director, Air Medical Research, [illegible] the task of the Board. He may [illegible] Medical Department [illegible] establishments in order to [illegible] Departmental interest. He [illegible] Medical Officer [illegible] Medical Officer (M.D.G.) [illegible] Board [illegible] reporting [illegible].

(*C.L.O. 379/49 and A.L.O. 3175/49.*)

4072.—Medical—Admission to Hospital—Scotland

(M.D.G. 38831/49.—2 Dec. 1949.)

The [illegible] Naval patients in any hospital other than a Royal Naval Hospital in Scotland which is not a establishment is under the National Health Service [illegible] through the Military Registrar, 5a, North Bridge, Edinburgh.

2. The [illegible] arrangements may be made direct with the hospital the Military Registrar [illegible] subsequently.

4169.—Medical—Vaccination and Inoculation

(M.D.G. 55759/49.—9 Dec. 1949.)

A.L.O. 841 is to be amended as follows:—

[illegible] (a) (b) (c) deleted and substituted.

[illegible] the provisions of Rule and A.L. Article **1417** (Chapter 12) [illegible] meeting the scientific requirements for vaccination or inoculation [illegible] Medical Officer in accordance with the prescribed [illegible] in which the instructions [illegible].

[illegible] (2) (a) (b) (c) (d) (e) deleted.

[illegible] provisions of Rule and A.L. Article **1417** (Chapter 12) [illegible] establishment in the Home Fleet [illegible] and Medical Officers and Medical Officers [illegible] year [illegible] Medical Officer [illegible].

(*Rule and A.L. Article 1417.*)

(*A.L.O. 894/49.*)

Notice

[illegible] t [illegible] s and in [illegible] and [illegible] experien [illegible] items of news and in [illegible] will be w [illegible] f [illegible] ships and establ [illegible] s of births m [illegible] ths are in [illegible] budget [illegible]

All [illegible] communications published in the Jour[illegible] THE ROYAL NAVAL MEDICAL SERVICE will become the property of the Journ[illegible] and copyright powers unless the author declares when sending the article that he does [illegible] reserve the copyright to himself

The Harvard system should be employed for bibliographical references these references being arranged in alphabetical order of the authors names at the end of the contribution thus Smith F G (1935) *J roy nav med Serv* **22** 33 In the text a reference to a publication should be cited by giving the author and in brackets the date thus Smith (1935) believed this to be due &c

All communications should reach the Editors on or before the first of the month preceding the date of issue Unless clearly written they should be typed in order to avoid mistakes and they should be addressed to the Editors JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE Moukton House Alverstoke Gosport Hants.

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VOLUME XXXVI APRIL 1950 No

Journal
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Articles

A HOUSING SURVEY IN AN ASIATIC COMMUNITY

BY

Surgeon Lieutenant-Commander A ROBINSON, R N

In the plan for the construction of the Naval Base in Singapore the great value of housing the labour force near their work appears to have been fully realized Before the capture of the Colony by the Japanese in 1942 many of the buildings for the accommodation of Asiatic workers were completed and occupied It was fortunate for us that so much of the construction was finished at that time for building costs in the Colony have increased enormously since the war

There are four main cantonments the Old Asiatic Lines Canberra Lines Suara Lines and Western Depot Lines. The Old Asiatic Lines and Suara Lines consist of buildings made of wood raised above the ground on concrete pillars Each building is 161 feet in length by 20 feet deep and contains twenty-six rooms measuring 12 by 10 feet Each room constitutes a unit of accommodation for one family and since the building is two rooms in depth it amounts to a terrace of back to back dwellings and has the evils inherent in this arrangement (Jameson and Parkinson 1947) I do not think it was ever intended that a family should be housed in one room and it is much more probable that the intention was to give to each the two rooms which extend from front to back We have however been forced to make this restriction because of the larger number of people who have crowded into the Base

The buildings are set well apart from each other and in the ample space between are the latrines lavatories and cooking places These Lines were the first to be erected when the Base was under construction in the twenties and thirties and were not intended to last as long as they have but those in the Old Asiatic Lines were well built and provide very valuable accommodation in these days of financial stringency The Suara Lines are scheduled for early demolition

Canberra Lines [illegible] street and is [illegible] town. It has well-designed [illegible] shopping centre, a hospital of [illegible] beds with detached wing of 70 beds [illegible] maternity and for infectious [illegible] concert number of visitors [illegible] hundred children [illegible] temples, mosques and churches [illegible] religions. Western Depot [illegible] in that part of the [illegible] from Canberra Lines. The living accommodation of [illegible] average number of dwellings arranged in blocks. The buildings [illegible] in that they are built of brick or clad with plaster but they [illegible] being two-storey and others of pise [illegible] the latter [illegible] temples. Some of these single storey blocks [illegible] married [illegible] of workmen of the overseer class and three [illegible] room and a detached wash place. Kitchen and [illegible] in the ground behind the back. Most of the dwellings have [illegible] room only which although it has its own tiny verandah and [illegible] is simply a part of a block to back house. The same is [illegible] blocks they are back to back dwellings which only differ from the single storey blocks in that there is a communal verandah running right round the building on each storey.

So far as living space [illegible] those blocks which consist simply of one immensely long dormitory on each floor are the best off. These accommodate bachelors but are principally very unpopular with those gentlemen who would infinitely [illegible] room ten foot square than have four times that amount of space in a dormitory.

During routine inspections of the Asiatic Lines in the first six months of 1948 it was observed that the housing accommodation was being severely strained. Rooms everywhere appeared to be overcrowded and when it was noted that the inspections took place in the forenoon when the men were at work it was obvious that conditions must be even worse than appeared at that time.

It was decided to make a survey of the living-space of the inhabitants of the Asiatic Lines. The records in the office of the labour supervisor were used as the most useful and accurate method of extracting relevant information.

A pro forma was constructed for each block. On this was arranged to put (*a*) the house and block numbers, (*b*) the number of individuals in each house, (*c*) the number of individuals in each room, (*d*) the number of children in each room, (*e*) the age groups of the children.

It was decided to define a house as those quarters allotted to an individual workman in which he and his family (if he were married) lived. A house might thus consist of one room or two. Where the individual was a bachelor his family might consist of his mother and sisters or might be himself alone in which case we noted whether he was accommodated in a room by himself or with one, two, three or more other bachelors. I noted those bachelors living in dormitories but they were excluded altogether from the final survey since it was decided that no overcrowding was taking place in such accommodation.

A room in the Asiatic Lines is a standard size. In most cases it measures

12 ft x 12 ft but some are only 10 ft x 10 ft The arrangement of Block in either two room or one room houses helped considerably in working out the numbers living in each room

The term family was used in including a workman his wife their children and any others whom he admitted to his house to live The last group included all sorts of kinsfolk—in laws brothers sisters nephews nieces and even paying guests! No attempt was made to sort out and record these complicated relationships

A child in this survey is an individual beneath the age of 15 years This definition was purely arbitrary but has I think been justified Although in a few cases we found that some wives fell also into the category of children their numbers were not enough to upset in any way the general conclusions reached They are recorded as children

The age-groups of children were 0/1 month 1 month/1 year 1 year/3 years 3 years/5 years 5 years/10 years 10 years/15 years

The Results

Numbers The total number of persons in the survey was 8,815
Of these 6,745 were adults
2,070 were children

Individuals per room

	Adults	Adults per cent	Children	Children per cent
At rate of 1 per room —	198	(3.0)	4	(0.2)
1 —	577	(8.6)	103	(5.0)
2 —	1,237	(18.3)	211	(10.2)
2 —	752	(11.2)	350	(16.9)
3 —	1,870	(28.0)	564	(27.2)
3 —	530	(7.8)	345	(16.6)
4 —	913	(13.5)	210	(10.0)
4 —	63	(1.0)	31	(1.5)
5 —	340	(5.0)	107	(5.1)
5—	265	(3.0)	145	(7.0)
	6,745		2,070	

From these figures we see that only 3.0 per cent of adults and an infinitesimal figure of 0.2 per cent of children have a room to themselves At the other end of the scale 3 per cent of adults and no less than 1 per cent of children are living at more than five persons per room If we say that 2 persons per room is a reasonably healthy number—and it must be remembered that the floor area is only 144 square feet at best—then nearly 70 per cent of adults and 85 per cent of the children are overcrowded in most cases grossly overcrowded

Age groups—The division of the 2,070 children into their age groups furnished these figures

0/1 mths	1 mth/1 yr	1/3 yrs	3/5 yrs	5/10 yrs	10/15 yrs	Total
24	243	239	235	829	500	2,070

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible] cubic feet of air-space [illegible] number of people per room [illegible]

AVERAGE ROOM DENSITY [illegible]

Size of household (average)	[illegible]	[illegible]	[illegible]
One person	[illegible]	[illegible]	[illegible]
Two persons	[illegible]	[illegible]	[illegible]
Three	[illegible]	[illegible]	[illegible]
Four	[illegible]	[illegible]	[illegible]
Five	[illegible]	[illegible]	[illegible]
Six	[illegible]	[illegible]	[illegible]
Seven	[illegible]	[illegible]	[illegible]
Eight	[illegible]	[illegible]	[illegible]
Nine	[illegible]	[illegible]	[illegible]
Ten	[illegible]	[illegible]	[illegible]
Eleven	[illegible]	[illegible]	[illegible]

The above figures do [illegible] be satisfactorily utilised [illegible] the Room Density figures

The Municipal Standard (Municipal Ordinance Sec [illegible] an adult should have 350 cubic feet of air-space [illegible] space) and a child half this amount This had been taken by agreement between the Municipal Health Authority and the Social Surveyors to mean that the permitted number of adults per room is four three and a half for a cubicle Judging by this standard 8 8 per cent of adults and 13 6 per cent of children in the Base are living in overcrowded conditions But the Municipal Standard is very low indeed and has been one assumes adopted *faute de mieux* If we adopted the so-called Manchester Standard of some British Social Surveys—2½ persons per room (children count as half)—the Base figures are on the face of it no better than the Singapore figures We have 40 9 per cent of adults and 32 28 per cent of children living at 2 5 per room or less Singapore has 35 per cent of adults plus children in the same category In the table quoted above however no note is taken of those accommodated in 'spaces If figures for this class were available our overcrowding would be markedly less than the City s

The Dangers of Overcrowding—There are many dangers inherent in overcrowding—not only dangers to health but also to life and limb In so far as the health of a family is concerned tuberculosis is the greatest menace in Singapore That there is a positive correlation between overcrowding and pulmonary tuberculosis is well recognised. Macgregor (1926) recorded that the incidence of pulmonary tuberculosis declined inversely to the increase in size of house Bradbury (1933) gives statistical evidence to show that the greater incidence of tuberculosis in Jarrow as compared in Blaydon was associated with greater overcrowding in the former place

Other infectious diseases are similarly associated with overcrowding although [illegible] Dey [illegible] not so menacing in child-life in the Naval Base. Halliday (1925) [illegible] well that the incidence of measles in children of pre-school age (when the [illegible] carries the worst mortality) is 3.7 times the rate for the 5 to 10 year [illegible] in tenement dwellers but only 0.4 times as great in children living in [illegible] areas. Graham Forbes (1927) showed that the fourteen London [illegible] whose 1916–1925 diphtheria incidence was above the London mean [illegible] of 25.4 per 1,000 had a population density of 109.3 persons per acre and [illegible] per cent. overcrowding figure.

He contrasted these fourteen boroughs with the remainder whose incidence of diphtheria is is below the London average and he noted that in the latter the average population density was 70.2 persons per acre and the average overcrowding 11.5 per cent. It is not always safe, however, to assume that figures of this kind *prove* the construction which is placed upon them. Nevertheless these and many other similar reports constitute overwhelming presumptive evidence that infectious disease and overcrowding are positively correlated.

Solving the Problem.—There are two ways of dealing with the problem—the provision of additional accommodation and the reduction of the numbers occupying the present accommodation. The former solution is the better for this reason. To retain our labour force in an adequate state of efficiency and numbers it is necessary for us to offer both tangible and intangible benefits. We are dependent on the Colony generally for our recruits in the labour force. But we have in the colonial employer a formidable adversary who offers much higher wages than we do but usually nothing else besides. The Admiralty cannot compete with the wages offered by civil firms but can and does bid for the labour by offering regular hours and pay, free accommodation, medical treatment and hospitalization, lighting and water. Living conditions in the Base are so much better than elsewhere that there is keen competition to gain and retain Admiralty employment. It is our aim to build up a tradition of service, so that ultimately there may be an innate loyalty to Admiralty service in the Naval Base. There are ample signs that this ideal is becoming a reality. Nor is expediency the only reason for providing additional accommodation. Nobody nowadays can be satisfied by simply making a cash payment to an employee. The idea of mutual responsibilities between employer and employed is a trend of modern thought and practice.

Merely to build additional accommodation is, however, not a complete answer in itself. For the reason mentioned before—the tradition of hospitality—additional accommodation will attract additional folk to occupy it until that in the Colony generally becomes equal to the housing of the whole population. There are welcome signs that the latter goal is in view, for the Colonial Government has supported extensive rehousing schemes which are already well under way.

The reduction of the numbers to be accommodated by the exclusion of all but the immediate families of Asian employees is much less simple to achieve.

Nevertheless the system of admission by Police [illegible] control [illegible] cases of hardship do cause an inevitable relaxation from time to time.

New Housing.—There has been steady progress in the erecting the sixteen months since the survey was made. In addition to new building a system of rehousing has been initiated. Some of the bachelor blocks which in the survey above are being altered from large open dormitories to individual family quarters. The bachelors are being rehoused in the single bachelor dormitories which have been left unaltered. This is not popular with the unmarried men. New building is controlled by the funds made available by the Admiralty and the amount of money for the purpose is in turn under the control of the general economic crisis. Nevertheless a new set of quarters is now nearly ready for occupation and should be a thriving little community within the Base by January or February 1950.

SUMMARY

(1) The details of a housing survey of an Asiatic community in a Naval Base are given.

(2) The figures show gross overcrowding by European but not by Asiatic standards.

(3) Amongst the causes general shortage of houses in the Colony and the superiority of living conditions in the Naval Base are predominant.

(4) The dangers of overcrowding are described.

(5) The solution of the problem lies in new building and rehousing. The difficulties of these measures are discussed.

My thanks are due to S.B.P.O. F. M. Wort, Royal Navy, for his assistance in extracting the basic figures from the records to Mr. Bertram Gray, Labour Supervisor, for allowing us to use his records and to Surgeon Captain M. Brown, R.N. for his interest in the Survey and for permission to forward the paper for publication.

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RAT DESTRUCTION IN H.M. SHIPS

BY

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MERCHANT ships are required by the Port Sanitary Regulations 1933 and the International Sanitary Convention of 1926 to possess a Certificate of Deratization or exemption from deratization which must be renewed every six months. Such ships are usually fumigated with hydrogen cyanide gas when considered necessary by the Port Health Authority of the particular port where the ship happens to be on expiry of the Deratization Certificate. The reason for this is of course to prevent the spread of plague by rats which may have got on board the ship at a port where plague cases are occurring (or infected rats). The disease may affect the rats and cause a number of dead rats to be found on board, or may break out among the crew, or it may be conveyed to some other port and cause an outbreak of plague there. Deratization is an expensive item for shipping companies, but in addition to plague prevention experience has shown that it also prevents much damage to cargo and ships fittings by rats.

H.M. Ships are not required to obtain a Deratization Certificate as it was considered when the regulations were made, that there was little likelihood of H.M. Ships spreading plague. This is a view worthy of reconsideration in the light of the development of landing craft which can run from beach to beach and provide excellent facilities for the rapid transfer of rats from an infected port to a new area. This was in fact suggested although it has never proved as the possible means of spread of plague to Malta during 1945-46 (89 cases with 22 deaths, i.e. case mortality of 27·5 per cent.). Landing craft M.L.s and other small craft were beached or moored in Msida Creek and the first cases of plague were associated with the adjoining village of Gzira. In addition to the spread of disease, rat extermination in H.M. Ships is important for the prevention of damage to equipment and stores. The reasons for rat extermination in H.M. Ships may be briefly stated thus:

For the prevention of (*a*) spread of disease (plague, Weil's disease, murine typhus); (*b*) damage to electrical and other equipment; (*c*) damage to stores; (*d*) annoyance to personnel.

Size of the Problem.—There is no doubt that a rat problem exists in H.M. Ships but it is rarely severe, and as a result there is a tendency to delay taking effective action or to employ hit or miss methods. The Dockyard rat catcher can be most helpful when available, but he is not always on hand and often he can only give sporadic attention to a ship for a variety of reasons. In modern warships the ever increasing mass of radar and other electrical equip-

[illegible] equipment has been [illegible] by [illegible] fitting. R[illegible] not infrequently gnaw [illegible] because in warships with s[illegible] many steel fittings [illegible] readily available for the rat to gnaw to grind away his [illegible] teeth. It is noteworthy that although both the ship [illegible] (*Rattus rattus*) or the brown rat (*Rattus norvegicus*) may infest ship[illegible] the greater chamber and in all extermination procedures in ships all [illegible] rats to climb and move about above deck level must be remembered.

Quays and dockyards throughout the world tend to be heavily infested with rats and in spite of properly fitted ratguards and lighted gangways rats still get on board. Incidentally H.M. Ships commonly use mooring wires instead of ropes and ratguards do not always fit such wires. A good alternative ratguard can be provided by fishing a piece of canvas about twelve inches wide round the wire and keeping it tacky with coatings of tar or pitch. H.M. Ships frequently berth alongside each other which provides a means for easy transfer of rats from one ship to another.

Searching.—The first essential in keeping a ship free from rats is to have accurate and early reporting of signs of the presence of rats. For the novice the most obvious signs are droppings, evidence of gnawing or damage to foodstuffs or stores. Other indications not so easy to detect are footy marks (or a greasy smear where the rat's body rubs against a wall), foot and tail marks in sediment. Live rats may be seen and sometimes the nest is discovered. When any such signs are found they should be reported.

I would venture to suggest that administratively a rat extermination organization should be drawn up for all ships under the direction of the Executive Officer and that he should have a rat extermination party which should be given some training in this subject.

If the presence of rats is detected and dealt with early much trouble can be avoided. The gestation period of the female rat is about 21 days and the litter averages 8, so it does not take long for a colony to develop.

Once the presence of rats has been confirmed a careful search should be made in the compartment affected and in surrounding compartments to ascertain the extent and degree of the infestation. Usually in H.M. Ships the infestation is a localized one and in that case all that remains is to decide upon the form of treatment to be used. Widespread generalized infestations which are rare in H.M. Ships should be dealt with by experts who will probably under such circumstances recommend fumigation.

Treatment

(*a*) *Trapping.*—Although trapping in land infestations is being replaced by the poisoning method it is still of considerable use in ships. This is especially so in the small localized infestations common in H.M. Ships. It is important to set a number of traps and to set them for several nights. The best type of trap for use in ships is the breakback trap with a treadle. The bait used

should preferably be of an attractive nature such as a piece of bacon, kipper or the like for unfitted spaces and a magazine trapping will give good results. The trap should be set across the run and at right angles to the direction in which the rat travel to and along the run. It is suggested that all ships should carry a supply of traps for setting when any evidence of rat infestation is found. A number of traps must be set and these should be set at all points where signs of rats have been seen. It has been said that handling traps with ungloved hands keeps rats away from the traps, but this is doubtful and for practical purposes gloves need not be used.

Briefly trapping is of value in ships crowded with slight infestations and for use in confined spaces and compartments where the use of other methods is undesirable.

(*b*) *Poisoning* (pick-axing method).—In this method the rats are conditioned to eat unpoisoned bait and when their instinctive suspicions are somewhat overcome a suitable poison is added to the bait. This method which gives the best results in bad infestations is of use in ships where there is a large or widespread infestation or where trapping has been tried and has failed. The baits require to be looked at and changed frequently so that the "takes" of unpoisoned and poisoned baits can be counted. The usual bait used is fare is dumpened sausage rusk, but as this is not readily available in ships a liquid mash made by soaking stale bread in water until it has a porridge-like consistency is just as good.

A number of poisons can be used but the best one for our purpose is zinc phosphide and poisoned bait should contain:

Bread mash	40 parts
Zinc phosphide	1 part

Zinc phosphide is a naval store article and its only limitation is that it should not be used near explosives (i.e. in magazine areas). This poisoned mash should not be mixed in a compartment where food is prepared to avoid the possibility of accidental contamination of food. All baits should be laid out in heaps along the runs in about the quantity of a heaped table spoonful.

In H.M. Ships it will suffice to lay prebaits on the first and third days and then poisoned baits on the fifth, seventh and ninth days thus:

(1) Preliminary	Attempt to trace rat runs along which baits should be placed.
(2) First Day	Lay unpoisoned bait.
(3) Third Day	(*a*) Examine baits and note the number showing signs of being eaten (i.e. "takes"). (*b*) Replace with fresh unpoisoned baits.
(4) Fifth Day	(*a*) Mix poisoned bait. (*b*) Remove remains of prebaits and place heaps of poisoned bait where prebaits have been.
(5) Seventh and Ninth Days	Note the "takes" of the above baits and replace with freshly made poisoned baits.

A [illegible] in painting, [illegible] inaccessible places behind lagging, or trunking, [illegible] rare occurrence.

Rat Proofing.—The best method of keeping [illegible] by adequate rat proofing during construction. Food stores, refrigerating trunking, and any spaces likely to provide harbourage for rats should be effectively rat proofed. This is now being done in merchant ships and it is thought is receiving equal attention in H.M. Ships.

In general rat infestations in H.M. Ships are not extensive and the use of either trapping or the pre-baiting method of poisoning could in most instances deal successfully with this problem. The methods described above are easy to apply, cheap and make no great demand on man power and are intended to indicate, without getting involved in too much detail, the general lines on which rat infestations in H.M. Ships can be tackled.

RALPH CUMING AND THE INTERSCAPULO-THORACIC AMPUTATION IN 1808[1]

BY

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And some there be which have no memorial,
Who are perished as though they had never been. Ecclesiasticus.

In October 1882 Paul Berger, who was surgeon at the Tenon Hospital and Professor of Surgery at the Faculte de Medecine de Paris, amputated the whole upper limb of a patient with an enchondroma of the humerus. The next year he reported the result, and in 1887 published his classic work, L'Amputation du Membre Superieur dans la Contiguite du Tronc. This was the first detailed monograph on forequarter amputation and in the historical review Ralph Cuming was named as the originator of the operation. Berger added that it had been performed only twice for war injuries, once by Cuming in 1808 and once by Gleizal Bey in Cairo more than thirty years later. Meanwhile, in 1836 it had been used for the first time in malignant disease by Dixie Crosby in New Hampshire.

In 1894 Cuming's priority was again recognized by W. W. Keen, Professor of the Principles of Surgery and of Clinical Surgery in the Jefferson Medical College. Keen published his results and gave a full description of his own technique as well as that of others including Berger. He reported another case in the following year. Both Berger and Keen were generous in recording the priority of Cuming despite the lack of any original record of his case, and the same scrupulous honesty has persisted in this city. Garrison gave

[1] Reprinted from the *Journal of Bone and Joint Surgery*.

[illegible] of Mulhene and Michael J Smyth acknowledged his [illegible] *Medical Press* (1946) and the *British Medical Journal* (1948) In all these references Cuming remained little more than a name and even the date that was attached was not always the same

Ralph Cuming was still a young man at the time of his death but there are many official reports of his work many details of his life in the Service and some account of the remarkable operation that he performed in the Naval Hospital at Antigua in 1808 As early as 1703 orders had been issued to naval surgeons requiring them to keep journals and records of cases and in 1731 there were further orders about these returns but their value to posterity was not always recognized and many were destroyed including all Cuming's journals The difficulties are increased by defects in the Surgeons Register which does not record his appointment as surgeon's mate and includes no reference to his degree of M D though this appears in the Monthly Muster Book of the Naval Hospital at Antigua in February 1808 and also in his obituary notice

A naval pay register shows that Cuming joined the *Ramin* on 16th July 1795 and remained as her surgeon until November 1797 This was a period of discontent with demands for improved medical care of seamen culminating in the mutinies at the Nore and Spithead From the *Ramin* he was transferred to the *Hind* in which he served till the summer of 1800 In neither ship did he see action or have much opportunity for surgery At that time the only provision for nursing was a berth situated against the forecastle bulkhead on the upper gun deck or in the fore part of the hold which was damp unwholesome and filled with stench from the bilges At the close of the century Captain Markham of the *Centaur* designed the improved sick berth that came to be known by his name but only four ships in the Channel Fleet had this accommodation at the time that St Vincent was appointed to the command Cuming was then appointed to the *Redoubt* and after six weeks was moved to the *Leyden* Despite the constant actions of this period it was again his fate to be excluded from active combat and to miss the experience in emergency amputation that was gained by many naval surgeons

In February 1801 having left the *Leyden* a few months before she was sent by Nelson to Boulogne where casualties were sustained in action Cuming was appointed to the Naval Hospital at Yarmouth Four months later after perhaps gaining some surgical experience he returned to sea this time for a month in *Royal Oak* and then in the *St George* which had been Nelson's permanent flagship earlier in the year at the time of Copenhagen His next ship *Ramilies* had also been at Copenhagen but again he had no casualties to treat The same fate attended him in *Malabar* of which he was surgeon for three months in 1805 He missed the action in which *Malabar* took part off Cuba in January 1806 and saw none throughout the year that he served in his last recorded ship *Pegasus* It appears that throughout his life at sea the most serious injuries that he treated were those from accidental explosion of guns while reloading—a cause of many compound fractures and amputations

[illegible] surgical [illegible] in the [illegible] Lagoon. The practice by which [illegible] continued in 1796 and, in the next year, [illegible] the [illegible] mission. Preventive measures were introduced [illegible] work in [illegible] in all men employed on shore in the West Indies in 1797—a practice [illegible] by Nelson to the Mediterranean station in 1801. The work of [illegible] and on scurvy had at first resulted in offered [illegible] had at the age of 83 years (1799). The complaints [illegible] on the mess decks of ships described so graphically by David Gillespie in his diaries had given place to improved hygiene. In 1800 Earl St Vincent issued an order for the airing of hammocks and clothing which [illegible] one may judge from recent experience must have been very unpopular. These were years of struggle for improved conditions of service culminating, while Cuming was in *Ramillies* with an Order in Council (22nd January 1805) establishing a uniform for surgeons and placing the medical service on an organized basis with relative ranks (though surgeons were only warrant officers). As yet however there was no official plan by which surgeons at sea could improve the slender knowledge with which they had passed their examinations on entry and the fact that Cuming had few opportunities for emergency surgical experience makes his achievement all the more remarkable. He may well have felt that his professional lot was unhappy. *But as brought forth and reared in hours of change alarm, surprise—What shelter to grow ripe is ours? What leisure to grow wise?"*

Soon after he left *Pegasus* Cuming's destiny changed. In 1806 Matthews and Leigh of 18 Strand, London published "Naval, Military and Private Practitioners Antimonensis Medicus et Chirurgicus." The author, Ralph Cuming M.D., R.N., was styled "Medical Superintendent in His Majesty's Naval Hospital, Antigua." No copy of his forgotten Antimonensis can now be traced; the name of Cuming was not to appear in print for another twenty-three years, but then it was to be a name remarkable.

In the *London Medical Gazette*, 21st November 1829 there was a long report by Mr J. Luke of the London Hospital of an operation performed successfully by him in October 1828 (pp. 275–280). He had removed three-quarters of the left scapula of a 14-year-old girl for sarcoma of the bone, and it was said that she bore this formidable operation remarkably well, "and did not faint." The account was read by a former naval surgeon, Mr A. Copland Hutchison, who practised in Duchess Street, Portland Place, London, and the next week he sent a letter to the *Gazette*. Through this chance correspondence we learn of Ralph Cuming's place in the history of surgery. In his letter

[1] Alexander Copland Hutchison F.R.C.S., author of Hutchison's Surgery, [illegible] other works in surgery, served in the navy from 1801 to 1810, and from his experience in [illegible] wrote books dealing with casualties in action and the care of the wounded. He became surgeon extraordinary to H.R.H. The Duke of Clarence in 1827, senior surgeon to the Westminster General Dispensary.

[illegible] in Greenwich Hospital

[illegible] a pensioner [illegible] acinum of [illegible] and I perfectly remember [illegible] one of the London hospitals, [illegible] this formidable operation [illegible] Gun shot [illegible] the operation was determined on and [illegible] the Naval Hospital at Antigua

[illegible] January 1830 in the *Gazette*, Hutchison added that the case had been examined at St Bartholomew's Hospital He added that there was no doubt that the surgeon had removed the forequarter at operation and that it was not a case of traumatic amputation by the shot that wounded the seaman Cunning's priority in performing interscapulo thoracic amputation rests on this evidence Hutchison gave no other details, and the few records of the Naval Hospital at Antigua that have been preserved shed no further light

From later reports of amputation it is possible to form an idea of the hazards of the operation It was in that year that new regulations had been issued for the home hospitals and if Cunning's patient had been at Haslar or Plymouth he would have benefited from the greater care then given to patients —bathing with soap and warm water, clean bed shirts, night caps twice a week linen sheets fortnightly hair mattresses, blankets and pillows The surgeon was urged to soothe and cheer their minds by the most humane attention, to hear with patience all their complaints to explain and redress as far as possible whatever they may think grievances by every expression of consolatory kindness which will naturally inspire them with confidence exhilarate their spirits and add to their hope of recovery to which it cannot fail to contribute One nurse was to be allowed for every seven patients, with provision for night nurses Hospital labourers cleaned instruments prepared dressings and attended patients when necessary

Nevertheless few of the amenities provided in the new regulations for home hospitals can have been available in the Leeward Islands His Majesty's Naval Hospital at Antigua was one of the many establishments that arose from the urgency of the times The prevalence of yellow fever kept this small hospital full and Cunning gained experience of this disease for he was responsible for the care of fever patients in addition to British wounded and wounded French prisoners-of-war The buildings were placed on a low hill to the north-east of English Harbour the dockyard on the south coast of the island which Nelson made one of his bases These various establishments were gradually closed down at the end of hostilities and by 1815 all naval staffs and stores had been centralized in Bermuda But a map of Antigua dated 1818 shows that the naval hospital was still in existence The staff was indeed inadequate it included only the surgeon the second surgeon Robert Johnson a clerk matron nurse porter and barber J B Douglas the dispenser his negro assistant and Pompee the watchman By day the entire nursing requirements were met by the matron and nurse by night 'contractors

nurses were hired to watch the sick. The whole establishment was administered by the hospital agent who was responsible for all expenditure, he himself drew the highest pay. Cuming's official pay was fifteen shillings a day and three shillings and fivepence for rations, but he had so many allowances for other duties such as attendance at the yard, that in one quarter he was paid as £295 12s 9½d.

Cuming was handicapped not only by limited nursing help but by primitive conditions and a tropical climate. The risk of sepsis was obviously great. Boiling of instruments after contact with septic cases had been advised in 1808 and knives were scalded because it was believed that warm instruments inflicted less pain than cold steel. Opium or rum was sometimes used for analgesia but this was exceptional. A piece of leather for his patient to chew may well have been given by Cuming when he placed the young sailor on the chair. With more consideration for the clothes of the patient than for his comfort it was usual to remove them entirely at this stage. The assistants grouped themselves about the chair.[1] John Woodall in 1639 prescribed a minimum of five assistants. Sir Charles Bell[2] writing thirteen years after Cuming's operation reduced the number of assistants to four and in his 'Illustrations of the Great Operations of Surgery' (1821) gave a vivid description of amputation at the shoulder joint. The legend to his illustration reads:

(1) The assistant or friend who supports the patient in his arms. (2) A male assistant who holds a sheet which is round the patient's body and who supports him against the

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[1] The identity of the patient cannot be definitely established but the Monthly Muster Book of the Naval Hospital at Antigua has two entries which are perhaps relevant. Thomas Jones of the *Dominica* Quartermaster was admitted on 11th March 1808 he had an arm amputated and remained till 22nd April 1808 when he was discharged to the *Pulteney* for passage to join the Fleet bound for Europe. John Melnates of the *Laura* was admitted on 18th March 1808 wounded by a shot in the left shoulder he was discharged 16th June 1808 to the *Lily* for passage to Europe. It will be noted that Melnates remained in hospital ninety days Jones forty two days suggesting that the wound was more serious than the amputation. There is no mention of amputation in the case of Melnates but this does not exclude the possibility of traumatic amputation before admission. This view is supported by a statement by Samuel Cooper in his Dictionary of Practical Surgery (Second edition 1813 p. 483) "I have lately seen in London a young sailor whose arm was completely torn off at the shoulder by a cannon ball from one of the Forts at Guadaloupe in March 1808 he suffered no dreadful concussion of his body nor were his senses at all impaired. This case was very remarkable as the scapula was so shattered that Mr Cummins of Antigua was under the necessity of removing the whole of it. The patient recovered in two months. From the account I heard I do not believe the axillary artery bled immediately after the accident. The young man was lately shown to the gentlemen at St Bartholomew's Hospital quite well." The last name of Samuel Cooper suggests that John Melnates was the patient. However Copland Hutchison in his second letter in the *London Medical Gazette* already mentioned stated specifically that the amputation was not traumatic and his evidence was not further disputed. This suggests that Thomas Jones was the patient.

[2] Sir Charles Bell (1774–1842) graduate of Edinburgh neuroanatomist writer and artist, lecturer on anatomy and surgery in the School of Great Windmill Street surgeon of the Middlesex Hospital Professor of Surgery Edinburgh.

[illegible] surgeon [illegible] [illegible] [illegible]

treated by purgation and barley water acidulated with [illegible] The healing of such a wound must have taken at least three months under the septic conditions in which Cuming worked. The whole record may horrify the surgeon of today and yet we must respect the confidence and courage with which Cuming extended the frontiers of surgery under such immense difficulties. There is no doubt that he deserves a place in history with those of his great contemporaries.

In all these Leeward Islands there are enclosures, seldom frequented, to which the curious stranger may be drawn by shaded solitude or the glimpse of an obelisk or pillared urn. The dappled sunlight plays on inscriptions that record a great tragedy for these are the graveyards of yellow fever. It is not that special cemeteries were reserved for its victims but that sometimes this was the only cause of death. The infection that decimated colonists and swept away garrisons, cut down the young and vigorous. Throughout the spring and early summer of 1808 the number of fever admissions to the Naval Hospital at Antigua increased steadily and in the first six months of 1808 they accounted for nearly all the 650 admissions. The mortality was high and many patients were noted in the muster book as being in a dying state. Epidemics were capricious: they appeared sometimes in the urban population and at other times among the plantation workers. Europeans newly arrived in the island might escape while the seasoned garrison succumbed, whereas at other times the new arrivals died in great numbers. As late as 1866 when Thomas Nicholson published his 'Essay on Yellow Fever' based on long experience in Antigua it had proved impossible to arrive at any conclusion that would indicate the probable course of an epidemic, still less its cause. Blood-letting and massive doses of calomel and quinine proved uncertain remedies and the authorities agreed that since nothing could be done the chief duty of medical officers was to cheer the victims and maintain their spirits. Cuming was a surgeon but he attended to the fever cases. He attempted a new method of treatment—the application of cooling dressings soaked in rum. In that climate they must at least have brought some relief and the results appeared to justify reports to the Admiralty. Cuming wrote asking for bottles and utensils, he wanted a further assistant—a Hospital Mate, he wanted a General Inspector of the hospital, he asked that his work as physician should be recognized since the Board had stopped all private practice. The many letters he sent to the Admiralty disclosed the strain under which he was working. On 8th February he wrote on a more serious matter, sending in affidavit respecting an affray between himself and Captain Napier of the *Pulmark*. The Board accepted his explanation and added, in their reply of 7th April, that the iron cradles he needed were being sent; they asked to be informed further of his experiments on Refrigeration with Rum. But in Antigua itself Cuming's relations were less satisfactory. It may be that his many activities and the emoluments arising from them were a cause of jealousy; it may be that he was trying to do too much, that he was too

direct at his [illegible] that he [illegible] insusibility On 9th February 18[illegible] the Admiralty saying that the incidence and mortality of the fever could be reduced if certain local measures were taken He referred to the [illegible] which sailors could procure rum to the debilitating effects of exposure to the sun and excessively heavy work to the laxity with which men [illegible] sleep exposed to the night air to the excessive shore leave and [illegible] nutrition and to the need for substitution of bread for biscuits [illegible] of his principles was established by the regulations that were [illegible] but at the time they were probably no more than a source of irritation to the island authorities The whole unhappy position is revealed in a letter from the Commander-in-Chief the Hon Sir Alexander Cochrane Rear Admiral of the White dated 4th February 1808 He informed the Commissioners of the Admiralty that the surgeon at the Naval Hospital at Antigua had been notorious in disputes and quarrels ever since his arrival in the island that his complaints were so frequent and voluminous that the Commander-in-Chief could not attend to them all that he was litigious that he was heartless that while sull in their hearing he declared that patients would die and that he performed his professional duties in an ungracious manner Cochrane asked that Cuming should be superseded There could be only one answer to such a letter and a pencil note was scribbled on it by the Board to the effect that immediate action was to be taken Another marginal note on the letter states that Cuming was then dead

The incidence of yellow fever in the region of the Naval Hospital and chief military station in Antigua was high Thomas Nicholson writing of the epidemic of 1849, remarked on how indeed the pestilentiousness atmosphere appeared to be confined within very small limits and it was within these limits that Cuming lived and that tragedy overtook him On 24th June 1808 young Ralph Cuming his son died and the next day he himself died The notice that appeared in the *Gentleman's Magazine* for September 1808 is very brief and does not mention the infection that killed father and son There is no relevant entry in the hospital master book except that R. Johnson was appointed Surgeon on 25th June It is likely however that they died of the still prevailing fever The obituary pays tribute his loss will be severely felt a very skilful and able surgeon and there far from his home in Romsey Hampshire the story of Cuming's brief triumph ends It was only twelve years since he had been passed by the Company of Surgeons as second mate of a first rate "At a Court of Examiners holden at the Theatre the seventeenth day of April 1794" He had more than justified the high estimate of his examiners

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THE CALORIC VALUE OF THE FARE AT SEA IN THE NORWEGIAN MERCHANT MARINE

BY

Dr. JOHAN KNAP

SINCE the last war a strong criticism has been voiced against the fare at sea in the Norwegian Merchant Marine. This is due to the fact that expenses have gone up several hundred per cent. far higher than the rise of the price index indicates. It has also been assumed that the composition of the food is inferior from a nutritional aspect; any certain knowledge is lacking on this point, however, but the high figures of the total amount of food used point towards a considerable loss of food which is not utilized.

During the latter part of the last century and the beginning of the twentieth the complaints against the fare at sea applied to the inferior quality and often also to a real insufficiency; these complaints were very often just. We had extensive outbreaks of beri-beri in our sailing vessels from 1890–1905 and again in the whaling factory ships about 1930. However, better official regulations, the latest in 1937, have removed every cause for complaints. The fare at sea in the Norwegian Merchant Marine before the war was not insufficient, even if some of the nutritional habits of the crews and the stewards could have been improved.

As a whole one has little knowledge of the composition and the caloric value of the Norwegian fare at sea. The intention of this examination is to try to fill in this gap. The fare in the whaling expeditions has been examined by Broch and Aga. Broch found a consumption per man *pro die* of 5 063 calories net, with protein figures of 201 3 grm., fats 206 grm., and carbohydrates 516 8 grm. Aga found 5 078 3 calories net, protein 217 grm., fats 234 3 grm., and carbohydrates 503 grm. Knap found in merchant vessels (coal burners) one in subtropical trade, 3 256 calories net, and 3 vessels in northern trade 5 312, 5 071, and 5 822 calories net. All these authors have calculated the values allowing for a loss of 10 per cent. for refuse and 15 per cent. for non-absorption.

It is not without interest to consider the development of the fare, the price in kroner[1] per man *pro die* during and after the last war on board Norwegian merchant vessels. In Table I is put down the consumption of food

[1] 1 krone equals 1 shilling.

TABLE I.—C[illegible] PROVISIONS ON BOA[illegible] 1,000 TO 1,400 T[illegible] 16–20 MEN C[illegible]

WITH FIGURES [illegible]

	Average daily ration issued to crew of 16–20 men	D[illegible]	[illegible]	[illegible]	[illegible]
	1939	[illegible]	[illegible]	[illegible]	[illegible]
Bread flour (grain per head) per [illegible]	793 grams	819	[illegible]	[illegible]	412
Butter [illegible]	96	10	[illegible]	[illegible]	90
Butter [illegible]	126	111	[illegible]	[illegible]	147
Coffee [illegible]	30	21	[illegible]	[illegible]	59
Meat and pork	328	[illegible]	223	427	[illegible]
Fish	143	40	384	354	323
Eggs	28	1	12	30	65
Cheese	25	36	26	45	60
Milk	10	58	104	186	343
Potatoes	[illegible]	744	1,024	724	790
Vegetables [illegible]	98	209	318	117	398
Fruit and berries [illegible] and jammed	11	49	4	[illegible]	98
Average daily ration	[illegible]	2,534	2,909	2,888	3,351
Average price per daily ration		Kr. 3.98	4.08	4.[illegible]	6.115
Average price per kilo		Kr. 1.55	1.38	1.60	1.80

on board four Norwegian coal mining vessels from about 1,000 to 1,400 tons with the crew varying from 16 to 20 persons in North Sea, Baltic and coastal trade. First of all this table makes it obvious that the amount of provisions offered, measured in grammes, has been constantly rising during these years. Next, the price of the foreign kroner shows a corresponding rise. It may be observed that the figures for the years 1942 and 1944 have been influenced by the nutritional conditions in occupied Norway. The shipping trade in Norway however was especially favoured in the allowances granted, various trades the sailors getting fairly abundant rations.

The figures are all above the requirement of the official regulations. The amount of fish products shows a slight but constant decrease. The figures for meat products show quite a considerable increase. An alteration from fish towards meat, e.g. from an easily assimilable protein to a less digestible protein has taken place. A more hatched increase is that of the consumption of vegetables.

In Table II is put down the consumption of food on board one of these ships during January 1947. The total amount of food supplied per man *pro die* was 3,170 kg. at a cost of 4.95 kroner. The amount of calories supplied is 6,279 grams, and with an allowance for loss and refuse of 25 per cent (1,570 calories) this gives a net consumption of 4,709 calories per man *pro die*. The

TABLE II

[illegible]	[illegible]	Consumption in kg per man per day	[illegible]	[illegible]	[illegible]
Bread [illegible]	[illegible]	0.118	[illegible]		[illegible]
Flour [illegible]	[illegible]	0.330	[illegible]		[illegible]
Peas [illegible]	[illegible]	0.031	[illegible]		[illegible]
Sugar		0.075	292		
Syrup	[illegible]	0.027	69		
Honey		0.025	81		
Butter		0.014	108		
Margarin	[illegible]	0.025	188		
Lard		0.025	188		
Fats		0.025	225		
Coffee	[illegible]	0.032			
Tea					
Beef fresh and salted	[illegible]	0.354	910	20.00	
Canned beef	[illegible]	0.040	80	5.20	
Cut meat	[illegible]	0.023	52	2.76	
Pork bacon and ham	[illegible]	0.155	858	34.10	
Fish fresh salted and [illegible]	[illegible]	0.187	200	33.66	
Fish herring salted	[illegible]	0.015	30	1.05	
Fish canned	[illegible]	0.034	35	3.40	
Fish tidbits	[illegible]	0.015	30	2.00	
Eggs	[illegible]	0.015	21	1.98	
Cheese	[illegible]	0.057	146	17.10	
Canned milk and cream	[illegible]	0.110	315	14.70	
Potatoes	[illegible]	0.327	697		18.85
Vegetables	[illegible]	0.095	160		5.68
Fruit berries fresh and canned	[illegible]	0.015	9		
Fruit and berries dried	[illegible]	0.008	26		
Fruit and berries jams	[illegible]	0.025	64		
Juice fruit juice	[illegible]		10		
Vinegar	[illegible]				
Oil	[illegible]		11		
Salt	[illegible]				
Average daily ration		kg [illegible]	cal 6279	gm 185.95	gm 73.17
					259.12
Less 25 per cent [illegible] in refrigerated [illegible]			1570		64.78
			cal 4709	gm	194.34

shipping company owning these vessels is in Oslo and the food is mostly bought in Norwegian harbours. This means considerably lower expenses compared with provisions bought abroad, especially in the hard currency countries, on account of the government subsidies given to food products in Norway. The shipping company has an official specially engaged in the work of supervising the purchase of provisions, and he is very interested in, and eminently fitted for, his job. As the ships very often call at Oslo, it is possible for him to

[illegible] in Norway [illegible] [illegible] board the vessel mentioned in Table II [illegible] on board is well administered.

In Table III is put down the consumption [illegible] on board a tanker (m[illegible]

TABLE III

Articles	Total consumption in kg	Per man per day	Calories	Contents of protein: Animal origin	Vegetable origin
Beef fresh	975	0 220	365	46 30	
Mutton fresh	400	0 100	21	18 50	
Pork fresh	749	0 180	930	3 91	
Turkey	106	0 024	29	5 35	
Chickens and ducks	89	0 020	26	4 50	
Bacon and smoked ham	285	0 064	300	16 10	
Salami and other cut meat	300	0 070	280	8 40	
Mutton salt	100	0 022	36	4 [illegible]	
Pork salt	100	0 022	171	1 40	
Beef salt	300	0 066	131	13 20	
Kidney and liver	150	0 030	42	6 00	
Canned meat	1 000	0 230 (1 048)	[illegible]	29 90	
Fish fresh	1 000	0 230	230	39 83	
Canned fish	474	0 110	125	11 00	
Vegetables	2 700	0 609	145		[illegible]
Potatoes	4 500	1 011	[illegible]		[illegible]
Canned vegetables	300	0 066	20		
Dried vegetables	160	0 034	20		
Fresh bread	970	0 218	860		[illegible]
Flour and flour products	1 924	0 432	1 370		[illegible]
Fresh fruit	1 380	0 310	174		[illegible]
Dried fruit	375	0 085	275		[illegible]
Spices	245	0 055			
Baking powder and yeast	52	0 012	10		
Eggs	300	0 070	89	[illegible]	
Canned milk	980	0 200	296	[illegible]	
Canned milk sweetened	570	0 130	437	10 00	
Margarine and lard	620	0 140	1 050		
Cheese	355	0 080	206	24 0	
Butter	130	0 030	251		
Cream and canned cream	35	0 008	15		
Sugar and syrup	585	0 130	419		
Coffee	350	0 080			
Tea cocoa and chocolate	70	0 016	50		
Average daily ration		kg 5 104	cal 9 729	gm [illegible]	[illegible]
				[illegible]	
Less 25 per cent loss in refuse and non absorption			2 435	[illegible]	
			cal [illegible] 294	gm [illegible]	

of 10 000 t d w in subtropical and northern trade from the middle of September to 31st December 1948 The total amount of food supplied per man *per diem* was 5 104 kg at a price of 12 42 kroner The amount of calories supplied

[illegible] and with an allowance [illegible] per [illegible] consumption of 7294 calories per [illegible]

These are extremely high figures and [illegible] kept figures from before the war [illegible] results during and after [illegible] the provisions were [illegible] advantage which [illegible] 3 kilogrammes per [illegible] exceptional is figure [illegible] 48 hours have occurred.

[illegible] 104 kg. [illegible] this imposing [illegible] utilized there still [illegible] which [illegible] 7294 calories is a [illegible] by the [illegible] ordinary circumstances [illegible] the food is not utilized for [illegible] The solution of this riddle lies [illegible] well known fact that a great part of the food is not utilized for [illegible] the place [illegible] of where the food [illegible] well known that [illegible] portion passes the rectum in an eatable condition. It is not [illegible] to think how great this unnecessary loss [illegible] that it is far greater than [illegible]

The next [illegible] the high protein consumption. The [illegible] per kg. body weight *pro die* and 100 grm. per [illegible] 5 [illegible] As mentioned before the figures found in the [illegible] are very high. They are regarded [illegible] and yet they are fairly much [illegible] per [illegible] The influence of the specific dynamic effect of [illegible] given the attention. The consumption of [illegible] kg. per man per week. This [illegible] per man per week this is [illegible] would be reasonable and [illegible] contains less meat than [illegible] the British.

[illegible] known that by people [illegible] are [illegible] very [illegible] expedients and [illegible] In the latter [illegible] 50 per [illegible] the captain for [illegible] conditions. The [illegible] part of the protein [illegible] is far greater [illegible] dishes. The [illegible] the total amount of [illegible] and the part which is derived from [illegible] products is far too high [illegible] in connexion with the [illegible] ship examined.

Fish and fish products represent a far more easily digestible protein than meat, the same time being a protein of the highest nutritional value.

These dyspeptic ailments may also be due to other factors, such as the constantly changing watches with correspondingly varying meal times, or to the fact that the food often is served too hot or often small meals are taken, the lack of a short rest after the meal etc. A nutritional disturbance which may be drawn from the present examination is the quantity of coffee consumed, the figure for coffee is 80 grm per man *pro die* in the whaling, sealing and is found to be 25.5 grm and 43.3 grm. The latter figure is quoted from Aga. He regards it far too high and adds that the sedentary man drank 1.5 litre coffee daily. Prof. C. Schiotz Norwegian norm is 10 grm per man *pro die*. It may be that the coffee possibly by the contents of tannin acid may add to the burden which the proteins exert on the digestive organs. The question of reducing the consumption of coffee and simultaneously introducing the most easily digestible protein viz. milk has been discussed by the present author in a previous paper. The author as a ships surgeon in a British whaling factory ship once had the opportunity to state the etiological importance of the abuse of coffee for dyspeptic disturbances and the good therapeutic effects of milk. A milk emulsifier had been installed which produced milk out of unsalted butter, milk powder (casein and salts) and water. The taste of the milk was as near that of cow's milk as possible and far better than that of condensed milk and the amount of fat in the milk could be varied at will. The machine could pasteurize the milk and afterwards cool it. As the supply of butter did not last the whole season it was impossible to give every man the quantity of milk desired. The ships surgeon was however allowed to use the milk for therapeutic purposes. All cases of dyspepsia and they were numerous were chiefly treated with milk, the patients being forbidden coffee. The results were surprising, most of the patients were soon cured and they were quite satisfied with the change.

Further it is striking that the consumption of fruits and vegetables has not exceeded the figures of the official regulations to the same degree as meat has done. These protective foods are of great importance in the prevention of several pathological conditions, probably also caries dentium, even if the question of its aetiology is far from solved. The teeth of the sailors are mostly in very bad condition, artificial teeth are usual even amongst the younger ones. In this connexion it is worth mentioning that the school dentists in Norway observed that caries disappeared among school children during the occupation and has reappeared after the war. The diet in Norway during the occupation was insufficient as to fats and proteins, especially protein of animal origin and contained small amounts of sugar. The diet consisted mainly of vegetables, potatoes and whole flour bread. Both in view of this experience and with the knowledge of the high contents of vitamins and minerals in vegetables and fruits it is desirable that the fare at sea contains greater quantities of these than is now the case. The high consumption of sugar and syrup is also remarkable.

[illegible]

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THE USE OF SODIUM AMINOSALICYLATE IN R.N. HOSPITAL, PLYMOUTH

BY

Surgeon Lieutenant-Commander NORMAN S. MARSDEN R.N

PARA AMINOSALICYLIC ACID (P.A.S.) it is first synthesized by Seidel and Bittner in 1902 and is a white crystalline substance readily soluble in cold water. Lehmann in 1946 showed that it was actively tuberculostatic and could produce an inhibition of 50-75 per cent. in a concentration of 0.15 mg. per 100 ml. when BCG was the test organism. Since then this tuberculostatic action of both P.A.S. and its sodium salt *in vitro* and *in vivo* has been confirmed by Sievers and Valentin in Sweden, by Yamin, Feldman, Karlson and Hinshaw in America and in this country by Dempsey and Lagg and others.

During the past year in the Royal Naval Hospital at Plymouth the sodium salt, parmisan sodium, has been used in the treatment of a number of cases suffering from pulmonary tuberculosis and the object of this paper is to give a survey of these experiences.

The drug was given orally in a 20 per cent. solution in water. It has an extremely bitter taste but experience proved that it was better to give it undiluted followed by a drink of fruit juice, etc., rather than to disguise

the taste and some flavouring agent. The total daily dose was 20 grm. this being divided into seven doses of 3 grm. given at two and a half hourly intervals commencing at 0600 and a final dose of 5 grm. at 2230. The reason for not giving it through the night was to enable the patient to have an unbroken sleep for approximately eight hours. The rapidity of both absorption and excretion necessitated the frequent administration. It was found that the maximum blood concentration was reached between 35–40 minutes following a dose by mouth. And that for a dose of 3 grm. this maximum varied between 7–14 mg. per 100 ml. blood and had fallen to between 2–5 mg. two and a half hours later.

Para aminosalicylic acid appears to have a remarkably low toxicity, the only toxic effects noticed in this hospital being loss of appetite when the drug was given immediately before a meal, this was taken into account when planning the times of administration, and secondly diarrhœa.

In only one case was this diarrhœa really troublesome and that was in one of advanced pulmonary tuberculosis complicated by tuberculous enteritis. In all other cases diarrhœa usually occurred during the first few weeks and responded well to symptomatic treatment. It is interesting to note that Fersolate which was given as a tonic in several cases seemed as good as anything in checking this somewhat troublesome complaint in a patient on strict bed rest. In two cases there was nausea and vomiting on one or two occasions during the first few weeks, but it was thought that there was a large psychological element present.

The type of case selected for therapy was the acute exudative pulmonary tuberculosis either of recent development or as a result of spread from previously existing disease. It should be stated quite definitely that P.A.S. does not replace the already accepted forms of treatment such as bed rest, sanatorium and collapse therapy, but there is no doubt in the writer's mind that it may materially assist them. Used in this way for instance it will reduce the risk of induction of an artificial pneumothorax which might have been otherwise hazardous or reduce to a minimum the possibility of contralateral spread.

With regard to the length of time over which treatment must be given it is felt that seven months is the minimum and it may well be that 9 or 12 months is nearer the mark. The original case in this hospital was treated for three months and then given a period of two months rest. During the first month the improvement was maintained but in the second there was a relapse, cavitation re-occurred and the sputum once again became positive, paramisan sodium was recommenced and a phrenic crush performed. He has now had a further seven months treatment and both clinically and radiologically has shown no signs of relapse.

P.A.S. can be used in conjunction with streptomycin and in several cases this was done.

By this means the maximum therapeutic action of each is obtained and hence an additional therapeutic effect. It is also possible that the use of the two drugs may delay the onset of streptomycin resistance. This opinion has

since been confirmed by the Medical Research Council's preliminary report in the *B.M.J.* of December 31 1949

Altogether ten cases have been carefully analysed in which the duration of treatment varied from nine to twelve months It is admitted that some of these cases have not been under treatment for a period of seven months hence any picture given is essentially tentative It is felt that the improvement shown in even a short period is worth noting

In only two cases did the sputum fail to become negative within two and a half months from the commencement of treatment one was a case of extensive bilateral pulmonary tuberculosis which is unlikely to have a negative sputum until surgical collapse can be performed on the left side It is felt however that in this case the drug materially decreased the risk in including a technically perfect artificial pneumothorax on the right side (Case IX) The other case was thought to have a tuberculous tracheo-bronchitis and was probably a very suitable one for combined streptomycin and P A S therapy but transfer to a sanatorium took place before the effect could be ascertained (Case I)

Apart from the absence of the bacillus in the sputum all cases showed a reduction in amount even to the extent of the sputum becoming non existent Along with this alteration in both amount and character of the sputum there was a great reduction in cough this being especially noticeable at nights

The general condition of the patient was seen to improve in most cases in the first two or three weeks It is true that this may have been largely due to the psychological effect of a new hope of cure in what is in the majority of cases pessimistically considered to be an ultimately fatal disease but along with this increase in well being came a vastly improved appetite Once again attention is drawn to the necessity for spacing the dosage as far as possible between meals With the improved appetite the effect on the patient's weight was considered significant Eight cases showed a gradual and progressive gain in weight which in four cases was preceded by a progressive loss until therapy was commenced In two cases the weight remained steady but the patients stated that that was about their normal weight and they had never been very heavy No case showed a loss in weight

In some cases there was a noticeable fall in the blood sedimentation rate It is true that bed rest alone will bring about a decrease in the B S R but a fall from 20–30 mm in one hour (Wintrobe) to 3 10 mm in four weeks is considered significant

The X rays in all cases showed a progressive hardening of the lesions with increased fibrosis The effect on cavitation cannot be considered as due to the drug alone because in most cases where cavitation was present some form of collapse therapy was employed however in the case of bilateral tuberculosis already quoted where cavitation and infiltration was extensive on the left side the X rays showed no increase in size of the cavities on the uncollapsed side over a period of seven months With regard to extension of infiltration in four cases prior to therapy the X rays showed a progressive increase but

within one month of commencement of treatment there [illegible] evidence of extension and subsequent X rays showed hardening of the lesions

Case I—R V M Writer aged 24 years

Admitted 24 8 48 Pulmonary tuberculosis picked up X ray showed [illegible] involving the right apex being almost completely confined to the azygos lobe

Sputum negative

Treated with three months bed rest

6 1 49 X-ray showed extension of the infiltration [illegible] apical cavitation Sputum positive

P A S commenced and strict bed rest

29 3 49 No evidence of activity up for one hour

Sputum negative

X ray showed marked improvement with fibrosis [illegible]

P A S discontinued

27 5 49 X ray showed great deterioration with a large cavity in the right upper zone with spread to the left apex Sputum again positive Right pneumothorax performed P A S re-commenced

Present Condition—Symptomless up right hours Not [illegible] three to four months Gain of 6 lb weight P A S again discontinued

Opinion—P A S is felt to have been of definite benefit especially in the relapse that occurred when it was discontinued at the end of March 1949

Case II—R. W M Marine aged 19 years

Admitted 17 9 49 Pulmonary pickup X ray showed fairly extensive bilateral upper zone infiltration

Treated with strict bed for one month

22.10 49 X ray showed increase of infiltration in both lungs [illegible] right

P A S commenced

22 12 49 *Present Condition*—Symptomless up for all toilet purposes Gain of 12 lb weight

X ray showed decrease in the amount of infiltration in both lungs [illegible] fibrous and no evidence of cavitation

Opinion—A case that seems to have benefited from P A S

Case III—A E W E M I aged 20 years

Admitted 27.9 49 Pulmonary pickup

X ray showed infiltration involving the right upper zone and apex

Complained of a little cough and sputum

B S R 16 mm in one hour Sputum negative

Treated with three months bed rest and P.A.S

Present Condition—Symptomless and up for toilet purposes Gain of 16 lb weight

3 1 50 X ray showed fairly extensive fibrotic lesions involving the right upper zone and apex

Opinion—Quiescent pulmonary tuberculosis

Case IV—T S W A C 7 aged 19 years

Admitted 13 6 49 complaining of cough and streaking of the sputum for one month one hemoptysis of about half a pint being recorded X ray showed infiltration in the right upper zone and left lower and mid zones

Sputum positive

Treated with two months bed rest There was progressive deterioration both clinically and radiologically Loss of 7 lb in weight still increased cough and sputum

X ray showed a spread in the left upper zone

[illegible] P A S commenced

[illegible] —Sympt[illegible]

[illegible] right

[illegible] X [illegible] bilateral fibrosis [illegible]

[illegible] Quiescent pulmonary tuberculosis [illegible] P A S

Case [illegible] —R E. Marine aged 20 years

Admitted 15 1 49 Pulmograph pick up X [illegible] showed ex[illegible] upper [illegible] and mid zones Tomography [illegible] cavit[illegible] upper [illegible] at the apex of the right lower lobe

Sputum positive B S R 28 mm in one hour [illegible] and a right phrenic crush

Sputum cum ½ gm h d and P A S

The sputum ceased was discontinued after [illegible] crush

Present Condition —Symptomless and up f[illegible] Weight [illegible] Sputum negative B S R 5 mm in one hour

31 12 49 X ray showed a marked decrease [illegible] fibrotic changes No evidence of cavitation

Opinion —P A S is considered to have been of definite value This case is a good example of the benefit derived from rest combined with both collapse and drug therapy

Case VI —E D Stoker Mechanic aged 20 years

Admitted 2 7 49 complaining of one months history of cough productive of mucoid sputum malaise Loss of weight and pleuritic pain in the right chest

X ray showed extensive bilateral tuberculosis breath pitch [illegible]

Sputum positive

Treated with five months bed rest P A S and streptomycin [illegible] gm t i d

Present Condition —Symptomless up f[illegible] all toilet purposes All sputum negative for [illegible] months Gain of 5 lb weight

X ray showed clearing and hardening of all lesions

Opinion —Quiescent pulmonary tuberculosis An excellent result in what was considered to be an almost hopeless case

Case VII —B J S Ordinary Seaman aged 18 years

Admitted 10 2 49 Pulmograph pick up X ray showed extensive bilateral upper [illegible] infiltration with a large cavity in the right apex Sputum positive B S R [illegible] mm in one hour

[illegible] crush started bed rest and a right phrenic crush

[illegible] 4 49 X ray showed definite extension of the lesions on both sides the cavity [illegible] unaltered P A S commenced and the phrenic paralysis was reinforced by [illegible] sputum

Present Condition —Symptomless and up for four hours Gain of 10 lb weight B S R [illegible] in one hour All sputum negative for four months There has been no [illegible] of activity either clinically or radiologically for two months

Opinion —P A S is felt to have assisted the collapse therapy

Case VIII —L C Marine aged 28 years

R[illegible] X ray of chest [illegible] 2 49 N A D

Admitted 11 10 49 Complained of cough and sputum loss of weight

X ray showed nodulation involving the whole of the right upper lobe and a large ring [illegible] was detected on tomography

Sputum positive B S R 35 mm Treated with strict bed rest and P A S

[illegible]

[illegible] of 3 lb [illegible]

X-ray showed a [illegible]

Outcome.—The [illegible] P A S [illegible] resisted

Case IV—[illegible] M POSM [illegible]

Admitted 16 3 49 Pulmograph pick up [illegible] case with cavitation involving the upper [illegible] Treated with two months bed rest and P A S [illegible] and X ray showed little change

19 5 49 Induction of right artificial pneumothorax [illegible]

26 10 49 Left phrenic crush later refilled [illegible]

Present Condition—General condition good [illegible] sputum daily Sputum still positive

The lesions on the right side are considered [illegible] perform a left sided thoracoplasty at an early date

Opinion—It is felt that P A S reduced the risk [illegible] complications in the induction of the right artificial pneumothorax

Case V—J W L Ordinary Telegraphist aged 18 [illegible]

Admitted 7 7 49 Pulmograph pickup Sputum [illegible]

X ray showed infiltration with cavitation in left upper [illegible] W.C. [illegible] lb Sputum negative B S R 38 mm in one hour

Treated with two and a half months bed rest [illegible] be satisfactory and cavity closed

30 9 49 Sputum for the first time became positive

5 10 49 P A S commenced [illegible] the next [illegible] in his general condition and sputum was repeatedly negative [illegible]

7 11 49 Sputum again became positive although X ray showed no change and no evidence of cavitation

18 11 49 P A S discontinued and case transferred [illegible]

Opinion—P A S had little or no effect and it [illegible] came from a tuberculous tracheobronchitis

Summary

An analysis has been made of the cases of [illegible] treated with para aminosalicylic acid (P A S) in the R A F N [illegible] Plymouth

The results obtained agree with the views of other [illegible] the drug has a definite beneficial effect in the treatment of the disease

The method of administration is considered [illegible] mainly with regard to maintaining adequate blood concentration [illegible] secondly on account of the effect of P A S on the patient's appetite

It is suggested that seven months is the minimum period of treatment

It is believed that a combination of P A S with streptomycin therapy delays the onset of streptomycin resistance

I wish to thank Surgeon Rear Admiral W J Colborne F R C S I R C P K H S R N for permission to publish this paper

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THE ROYAL NAVAL ORTHOPÆDIC UNIT, R N HOSPITAL, HASLAR

BY

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In April 1942 the R N Auxiliary Hospital Sherborne was opened for the treatment of traumatic surgical cases resulting from enemy action Attached to the hospital was the Traumatic Neuro-Surgical Unit of twenty beds There were also beds for medical and general surgical cases but it was the intention that Sherborne should be considered primarily as the Naval Orthopædic Unit

The Royal Naval Orthopædic Unit was born in the midst of war and grew to maturity without much of the difficulty and sometimes the bitterness that was seen when civilian hospitals developed their separate units It did not take long for the unit to become well entrenched and it was soon dealing with fractures of a complicated nature from all theatres of naval action The majority of these patients were late cases—and inevitably many of these required further active treatment such as correction of mal alignment sequestrectomies and arthrodesis of irreparably damaged joints A number of these cases required merely continuation of treatment and on the whole most of them had been adequately treated However it must be pointed out that a number had definitely been unwisely treated It was always fully appreciated that medical officers were often working under great difficulties but from time to time cases were seen where the initial treatment had rather asked for trouble

And so for six years the unit at Sherborne flourished under many different orthopædic teams In April 1948 Sherborne was returned to the Ministry of Health and the Orthopædic Unit was transferred to the R N Hospital Haslar in three separate convoys of buses and ambulances

How sad it was for one who had first seen Sherborne in a quagmire of mud and had watched it grow to become a well appointed establishment complete with playing fields tennis courts and well stocked gardens The closure of R N Auxiliary Hospital Sherborne was a bitter blow and it was with mixed feelings that the transfer to Haslar took place

To have an orthopædic hospital on a ground floor is a tremendous advantage

and it took some time for both the patients and the staff to get used to the complications of Haslar and the seemingly interminable stairs. Added to this was the difficulty of setting up a separate unit within an established hospital. Pessimists thought that the above project was doomed to failure and that the Orthopædic Unit would either die a natural death or suffer the fate of Jonah. However such was the kindness of our reception that things began to take shape and soon a state of affairs developed that was acceptable to all.

The underground theatres at Haslar converted from cellars at the commencement of the war presented a considerable problem. It was agreed by all concerned that it would be much more satisfactory if the Orthopædic Unit could have its own theatre where the question of sepsis could not arise. So pending the construction of the new theatre block which had at that time not been started all orthopædic operations were performed in the officers' block theatre. The new theatres were completed in September 1948 and it is pleasant to think that perhaps the Orthopædic Unit may have assisted in materially hastening their completion the conception of which was already in existence.

The unit consists of an out patient department an orthopædic theatre plaster room a physiotherapy department including a very well equipped gymnasium and an occupational therapy department. The ward state caters for 150 ratings and between 20 and 30 (60 per cent.) officers varying with immediate requirements.

At present only one P.T. Instructor is attached to the unit but the rehabilitation warrants a further two or three and it is hoped that these will be available in the immediate future. The P.T. School has been most helpful and has placed their baths at our disposal for suitable cases which are transported by bus to the P.T. School in Pitt Street.

The arrangement by which patients are sent to the R.A.F. Rehabilitation Centre has so far proved a success. There are however many advantages in having a Naval Rehabilitation Centre which need not be enumerated in an article of this nature.

So much for the development and general set up of the unit and now an attempt will be made to give some impressions of the type of work carried out and conclusions drawn from some of the results.

Fractures

To enumerate every fracture that has come to the unit would be a laborious and space consuming effort. It can be said however without fear of contradiction and without exaggeration that every type of fracture has been dealt with from the simple to the complicated and pathological varieties. On the whole efforts have been made to follow the dictates of Sir Reginald Watson-Jones with modifications demanded by circumstances. The time taken for any fracture to unite cannot be prognosticated accurately and consequently there should be no rule of thumb method in carrying out treatment. There may be months of difference in the progress of seemingly identical fractures in separate

individual [illegible] it has not been possible to find any [illegible] or biological reason for it. Needless to say lactic and [illegible] patients are excluded [illegible] above remarks. There seems [illegible] that progress is accelerated if the patient is co-operative and performs the regime of rehabilitation exercises assiduously. In this respect orthopædic patients recover much more rapidly than ratings with similar lesions and it is found as a general rule that they carry out the prescribed treatment with greater zeal. All fracture cases are given a good nourishing diet but [illegible] and there is yet to be proved that extras in the shape of so-called [illegible] preparations alter the picture appreciably.

Following from the above remarks it can be said that every fracture should have complete and uninterrupted immobilization [illegible] but that active exercises should be performed throughout. The limited [illegible] union hardly ever fail to [illegible] satisfactory conclusion. If there is discovered [illegible] tenderness and ability to perform unassisted active movements with the joints proximal and distal to the fracture, the chances are the fracture is well united. X-ray evidence must be taken into consideration but can be most misleading at times if taken entirely on its face value.

As far as possible internal fixation of fractures has been avoided. Plates in particular tend to delay union and whether as a result of the operation or the actual presence of the plate restoration of function is often retarded and frequently incomplete. It is also found that despite careful intentions at the time of reduction plates tend to keep the fragments distracted. But despite these disadvantages internal fixation may be the method of choice for certain types of fractures.

Regional Fractures

The Upper Limb.—In general fractures of the humerus present no problem and full functional recovery is achieved.

Two patients ended up with arthroplasties. In one the humeral head was dislodged well down on the anterior wall of the axilla and in the other the condyles were shattered beyond recognition. The former returned to full duty in the Dockyard and the latter a National Service Rating returned to his office job with an elbow able to carry out his breadwinning and social duties.

Radius and Ulna.—When both bones are fractured and displaced open reduction has been performed. Contrary to the practice in some civilian centres complete reliance has not been placed on internal fixation and plaster of Paris immobilization has been maintained for an average of three months. Some cases with non-union have been admitted and these were grafted with tibial block grafts and all returned to duty. All cases of fractured olecranon have been treated by open reduction and catgut fixation and immobilization in plaster of Paris at 90 degrees.

Scaphoids.—Fresh cases are immobilized in plaster for at least five months. If at the end of this period there is no evidence of union rather are there signs of sclerosis at the site of the fracture immobilization is discontinued and active

exercises instituted. A sprained [illegible] fracture of the scaphoid is immobilized in plaster [illegible] joint a chance to settle down and thus the [illegible] are [illegible]

For an old ununited fracture with disabling discomfort the [illegible] arthrodesis. Before this operation is performed [illegible] an opportunity of discussing the problem with [illegible] who has [illegible] had the operation. So far the results have been gratifying and [illegible] return to his original employment.

Lower Limb.—There have been very few [illegible] they have been treated in the orthodox fashion with Spiral Pen[illegible] The age-group generally brings this injury into the [illegible] occasionally a second decade and a few [illegible] have been the rule.

Unless there are unusual circumstances or complications [illegible] shafts are treated in a Thomas splint in suspension with tibial tuberosity [illegible] traction.

Open reductions were carried out in [illegible] with segmental fracture where the central segment resisted all efforts at closed reduction. [illegible] and restoration of length form the principles of treatment. Internal fixation with plates is found unsatisfactory as it delays union and tends [illegible] fixation of the vastus medialis and consequent loss of function. Again [illegible] plates may have to be used if all other methods fail.

Tibial plateau fractures if not grossly displaced or if uniformly displaced are treated with non-weight bearing exercises for four months without immobilization. If displaced open or closed reductions are performed with or without screw fixation depending on the stability of the reduction.

Tibial shaft fractures (with fibular fractures) are treated by closed manipulation and plaster of Paris immobilization provided the reduction is stable. In the case of an oblique and consequently unstable fracture the original [illegible] Steinmann's pin method plus plaster has given way to open reduction and simple screw fixation plus plaster of Paris.

A large number of ununited fractures of the tibia and malalignment unions have been admitted. The former were treated with inlay tibial bone grafts from the opposite leg and the latter by wedge osteotomies followed by plating depending on the stability of the result. In the case of the inlay grafts no screws are used for fixation as the graft is so cut that it must be hammered into the recipient bed and sits very snugly.

In fractures of the ankle joint when the mortice is not fully restored and the medial malleolus has displaced in open reduction is performed with a single screw fixation of the malleolus to the parent bone. Good results have been obtained from this method although occasionally there is slight discomfort and results will be relieved by removing the nail at a later date.

Os Calcis.—The treatment of gross os calcis injuries with loss of salient angle splaying of fragments and subtaloid involvement remains a most vexatious problem. The degree of disability is by no means always relative to the apparent degree of bone displacement. Good results have been obtained in some severe cases and poor end results in others with relatively minor injuries.

logical joint damage. In this fracture in particular each case should be treated on its merits.

Roughly speaking, and without any suggestion of dogma, the following lines of treatment have been evolved from a large number of cases on review with good, bad and indifferent results.

(*a*) Subtaloid fractures without loss of salient angle and without appreciable displacement. The best results have been obtained from non-weight-bearing exercises for three months followed by graduated ambulant exercises.

(*b*) Posterior subtaloid damage with marked displacement, stress of salient angle. The salient angle is restored and an immediate post-subtaloid arthrodesis and chip crest bone chips is performed.

(*c*) Gross damage to entire subtaloid joint with splaying and loss of salient angle. In this type of case it is felt that Bohler's technique should be given a trial although finally a triple arthrodesis may become necessary. It may be argued that the short cut of immediate triple arthrodesis will save time and obviate the possibility of stiffness in the other joints. This has been done with encouraging results but technically it is sometimes difficult to get accurate repositioning of fragments when the lines of cleavage are in so many planes.

For the old united but painful type of case, triple arthrodesis is found to be the method of choice although it passed through many phases of unpopularity.

In conclusion it should be stressed that in general our assessment of degree of recovery cannot be pronounced inside twelve months. It is appreciated that this subject is a highly controversial one and the above general lines of treatment are outlined from a large number of cases of all varieties that passed through this particular unit.

Sciatic Syndrome

Low Back Pain.—To some medical officers this complaint is merely a pain in the neck and the patient's intentions are viewed with grave suspicion. It is true that a few develop this complaint with one eye on a gullible medical officer and the other on the rosy potentialities of civilian life. With our present day experience of this syndrome it should be possible to sift the malingerer from the genuine cases. It is however considered very bad policy to persist in giving any case a long period of palliative treatment as the genuine case may quickly become a chronic with an intractable intracranial fixation of pain. Several cases have been seen and were eventually brought back to normal by the helpful intervention of the psychiatrists. Therefore it is felt that all cases of low back pain should be dealt with satisfactorily at the onset of symptoms. Those without genuine pathology should be discharged to duty forthwith and the next should be subjected to a regime of treatments till all symptoms and signs have disappeared. The following line of treatment is carried out for the acute case.

Strict bed with active spinal exercises is enforced for the first three to four weeks. After this a plaster of Paris spinal jacket is applied for three months followed by a month of rehabilitation. If the symptoms and signs persist after

this line of treatment and particularly if the C.S.I. protein is raised a laminectomy is performed and the offending disc removed. This again is followed by a month of stretched with spinal exercises. During the 3/12 period in a plaster jacket there is no reason why the individual should not be on duty but regulated spinal exercises must be carried out throughout.

With the above line of treatment it is noteworthy that 5 per cent only come to surgery and when they do come to surgery the disc protrusion requires no eye of faith to salve the surgeon's conscience.

A proportion of patients suffer from concealed discs and are liable to a recurrence when subjected to sudden strain. These recurrences as a rule clear up satisfactorily with exercises alone but may of course one day become persistent and require removal of the offending disc.

From the Service point of view the Royal Marines present a real problem as far as prolapsed discs are concerned. Before they can be classified as fit they must be capable of undergoing strenuous Commando training and it is extremely doubtful if any sufferer from recurrent low back pain should be subjected to such acrobatics.

In conclusion each patient should be carefully examined as the following list of cases admitted as low back pain will indicate.

(*a*) Seminoma of testicle with retroperitoneal involvement.
(*b*) Malignant involvement of L2.
(*c*) Carcinoma of rectum.
(*d*) Spondylolisthesis.
(*e*) Tuberculosis of sacro-iliac joint.
(*f*) Pregnancy.

Spondylolisthesis

This condition is frequently picked up radiologically during routine examination for other conditions but it is ignored from the orthopaedic point of view unless it produces symptoms. These symptoms and signs vary in severity and each case must be judged on its merits with particular reference to the degree of disability but not necessarily the degree of vertebral displacement.

Fusion of the lumbo-sacral junction with double tibial grafts has proved extremely successful. All cases treated by this method had complete relief from pain and complete restoration of physical function. Following grafting the patient is kept in a plaster of Paris bed for four to six months and then given a further two months in plaster of Paris pants.

Joints.—Joints come under review either because of some post traumatic lesion or because of some pathological condition.

Lesions of the menisci in knees scarcely call for mention in this article. It has, however been observed that there is a tendency in the Navy for lesions of the external menisci to exceed the percentage generally quoted in textbooks. It reaches approximately 20 per cent of the total.

In diagnosing a tear of a knee cartilage a carefully taken history is put in the forefront and clinical findings used as corroborative evidence. Once a diagnosis is made the cartilage is removed although at times the first inspection

[illegible] the joint thus [illegible] Only in [illegible] posterior third tear occurs to light [illegible] months if [illegible] has been detached. Post-operative [illegible] the utmost [illegible]

Recurrent Dislocation of the Shoulder—Recurrent [illegible] of the shoulder is a relatively [illegible] in the Royal Navy and [illegible] has been treated with [illegible] Bankart's method of repair. The majority of these cases [illegible] found to have [illegible] fibrous glenoid lip. In two other cases the subscapularis muscle was [illegible] to its origin but of these this has been left [illegible] the assumption that this action tends to encourage dislocation.

In approximately 6 per cent. of the cases treated loose bodies were found in the joint during operation although X-rays taken in two planes failed to reveal this in half the number.

Bankart's operation has replaced the Nikola repair and also the coracobrachialis lengthening repair. The results have been excellent and no recurrences have been reported to the unit. There is no reason why these cases should not be considered in far full duty after reconstructive surgery.

Arthrodesis of Joints

Shoulder joint—In the shoulder joint arthrodesis has been carried out for brachial plexus lesions post poliomyelitis cases with muscular dysfunction and for tuberculous lesions. The Bruce Gill—Watson Jones modification of the classical method has been employed with great success in all non-tuberculous cases. In tuberculous cases the impression has been formed that Brittain's method of extra-articular arthrodesis is up to date the method of choice.

Wrist joint—Brittain's arthrodesis of the wrist has proved extremely successful in cases of irreparable damage with osteoarthritic changes in the carpus or radius. The period of four to five months plaster immobilization need not be spent entirely in hospital as the majority of patients are able to carry out their duties with their wrists in plaster. The donor site—lower limb—is put in a walking plaster for three months. Anything short of this is liable to result in stress fractures. All cases treated with the above method make a full economic and social recovery.

Hip-joint—This will be mentioned under the section on surgical tuberculosis.

Knee joint—Following severe damage to the articular surfaces and ligaments it was found necessary in a few cases to arthrodese the knee-joint. After the usual straight saw cut removal of articular surfaces the freshened bones were held in opposition with crossed Steinmann's pins in plaster of Paris. In one instance were crossed bone grafts used but nevertheless every case united satisfactorily. Needless to say such end results are excellent from a civilian point of view but render the unfortunate naval individual unfit for further service.

Ankle joints—A large number of disorganized post-traumatic ankles have required arthrodesis. A few cases of osteochondritis dissecans have been similarly treated. As far as technique is concerned a double incision is used

one over each malleolus. The distal 3 inches of the [illegible] a graft between the tibia and the talus. By means of three [illegible] the graft is fixed to the tibia and talus, and the now denuded [illegible] joint surfaces are held together. This method has proved [illegible] quoted in textbooks and in every case has resulted in [illegible] and functional outcome.

Arthroplasties

Earlier in this article mention was made of two arthroplasties—one of the shoulder and the other of the elbow.

A limited number of excisions of the proximal row of carpal bones have been performed for gross traumatic damage. This procedure is always carried out on the understanding with the patient that if it is not successful a full-blown arthrodesis must follow. 60 per cent. of the cases have recovered sufficiently to make arthrodesis unnecessary. The remainder required arthrodesis. Despite the 60 per cent. figure this method is not one that can be whole-heartedly prescribed but if the patient is keen or must have the mobile wrist, it is well worth a trial.

Keller's operation for severe hallux valgus and hallux rigidus is in fact an arthroplasty of the first metatarsophalangeal joint. Provided the post-operative treatment is carried out assiduously, the results from this operation are excellent. Complete reliance on the operation itself and neglect of the after-care spells disaster.

Vitallium Cup Arthroplasties

The unit has now advanced well into double figures with this operation. All except two were performed for crippling osteoarthritis of the hip joints. The remaining two were victims of ankylosing spondylitis. The oldest patient was 70 years, but the majority were in their fourth decade.

So far this operation has proved a great success in osteoarthritic cases. Three patients have returned to full duty. Three were approaching retiring age, and although officially invalided, they are now fully employed in civilian life; two in particular had to pass a fitness test before acceptance. The oldest patient of all was unable to attend on his own within when admitted, but he can now walk, several miles, drive a car all day, and is of material domestic assistance to his invalid wife. The remainder are convalescing at present and are progressing favourably.

The patients with ankylosing spondylitis have certainly benefited by the operation, but the results are by no means dramatic. It is indeed doubtful if it is the method of choice in the treatment of such cases. Probably a non-foreign body arthroplasty is, after all, superior.

The surgical technique and after-care are too lengthy to merit inclusion here, but there is nothing desperately tricky in the principles, as long as the mind is kept active to details. This is particularly true in the post-operative rehabilitation. Early weight-bearing is considered to be contraindicated and should

be delayed for three to four months at least. Active [illegible] exercises should be instituted forthwith, however.

Surgical Tuberculosis

The incidence of surgical tuberculosis is generally accepted [illegible] increase throughout Britain and the naval age-groups strike us [illegible] Service inevitable. The majority of cases involve the spine, but the shoulder, wrist, hip, knee and ankle joint tuberculosis have also come under [illegible].

Good results have been obtained by treating shoulders and hips by the extra-articular methods of arthrodesis advocated by Brittain. Wrist-joints too are treated by Brittain's tibial graft arthrodesis, and while the end result is generally very good, approximately 50 per cent. of the cases pass through phases of uncertainty, but further interference at this stage is contra-indicated and continuation of plaster of Paris immobilization carries the patient through to a happy conclusion.

Knee-joints have been treated by excision and plaster of Paris immobilization without any form of internal fixation. The five cases treated resulted in solid bony ankylosis.

Arthrodesis of a tuberculous ankle joint has proved to be a most uncertain undertaking, the disease frequently spreads to the tarsal region, when the episode generally terminates in a below-knee amputation.

Spinal tuberculosis is treated in two phases, the active progressive phase and the arrested phase. In the former, conservative immobilization in a plaster of Paris bed is carried out, and when the latter is reached a spinal graft is inserted. The patients are finally discharged with a spinal support.

In general, sacro-iliac joint tuberculosis has yielded to conservative treatment, but one case still on our books developed anterior and posterior sinuses and a large gut fistula. Colostomy plus penicillin and streptomycin therapy improved his condition, but so far the most marked advance was made with nitrogen mustard injections.

Apart from the last mentioned case, all the other patients who have completed treatment were able to resume active employment in civilian life.

Ankylosing Spondylitis

This distressing complaint used to be treated by a series of eight X-ray therapy courses with beneficial results. Now these patients are invalided as soon as diagnosed in receive treatment from civilian sources.

Flat Feet

The prevalence of this complaint need not be stressed. The diagnosis is difficult, but if given emergency treatment, which may include a course of manipulations under a general anæsthetic, very few need be invalided. It is noteworthy that the higher the invaliding rate, the higher will be the number of so-called sufferers knocking at the hospital gates. When mobile, the prognosis is excellent, but the tight and spastic feet will resist treatment unless of course manipulation produces the desired mobility.

Osteomyelitis

This condition is rapidly disappearing and when it is seen chemotherapy with surgery overcomes the dangers. Good results have been obtained from excavating Brodie's abscesses and filling the resultant defects with iliac crest bone chips. Similar treatment has been carried out with success for cases of osteoid osteomata.

New Growths

It need hardly be said that the treatment of malignant new growths of bone is painfully disappointing. Only too frequently in these cases the morbid curiosity of the pathologist is satisfied.

Sarcomata, secondary carcinomata, multiple myelomatosis and chondromata have been met and the majority have left the hospital with military honours, leaving behind the helpless acknowledgment of nature's triumph over medical science. One case is worthy of mention. This youth had a highly malignant osteogenic sarcoma of the humeral head. Three quarters of the humerus was removed and replaced by a fibula. This operation was performed four years ago and the patient is still in active employment with an arm which has 25 per cent movements at the articular shoulder joint. Incidentally, following operation he had courses of deep X ray therapy for his chest.

Plastic Surgery

It has become more and more apparent that a modicum of knowledge in plastic procedures is essential in trying to run an orthopædic unit. Limbs have been saved, loss of optimum length has been avoided in amputation stumps and operations on bones have been made possible by covering skin defects with satisfactory skin covering.

The best skin covering of all is, of course, full thickness skin, and this has been achieved by rotational flaps, cross leg flaps and tube pedicles. As a primary dressing a split skin graft is frequently used and it is sometimes surprising how it approaches normal skin texture with the passing of time. With our present day knowledge it should never be necessary to wait for a defect to granulate as some form of plastic procedure can be used at the onset.

Compound fractures with loss of skin can be reduced, immobilized and covered with skin as a primary measure, thus saving time and maybe the limb as well.

In the surgery of hand trauma these plastic procedures are of paramount importance either in the initial treatment or at a later date in the form of reconstruction.

In addition to the above facial injuries should be within the scope of the orthopædic surgeon and so complete his knowledge in the treatment of injuries to any portion of the osseous framework.

As far as purely cosmetic plastic surgery is concerned it may be considered rather outside the needs of naval surgery. However in the time

[illegible]

[illegible]

[illegible]

Conclusion

The rhythm is a rough sketch of the evolution of the Naval Orthopaedic Unit and the type of work performed. It would appear from the experience of the past few years that orthopaedic surgery is quite a large branch of naval surgery. However it must lead to efficiency to have complicated cases under the care of a team of surgeons running a single large unit on the analogy of several heads are better than one. In this respect it can be said that whatever the Orthopaedic unit has so far achieved has been shared by those medical officers forming the orthopaedic team and not by one single individual. All problems have always been freely discussed by the medical officers concerned and in this way every point of view could be aired and a final decision taken after the pros and cons had been weighed in the balance.

The theatre sisters and staff and the ward staffs deserve the highest praise, to them in particular goes the credit for the absence of a troublesome sepsis.

The Long Term Treatment Scheme has increased the scope of orthopaedic surgery in the navy and has allowed the naval surgeons to deal with patients who would otherwise pass to the care of our civilian counterparts. In this respect it is encouraging to note that for the past four years all the surgery in the unit was performed entirely by naval surgeons. Provided the Long Term Treatment Scheme is continued the variety of surgical problems embraced by this report is certain to continue. In this way the term Orthopaedic Unit as opposed to Traumatic Unit can be justified.

In the navy results should be satisfactory as the patients are disciplined, there is no shortage of accommodation, hence no premature discharges to own homes and the victim does not suffer from financial worries whilst on the sick list.

I am indebted to Surgeon Rear Admiral F. G. Hunt, *C.B.E.*, M.B., B.Ch. for permission to publish this article.

COMPARISONS OF THE NAVAL, MILITARY, R A F AND CIVIL MEDICAL SERVICES WITH PRIVATE PRACTICE

Part IV

BY

Surgeon Captain R. C. MUNDAY, C.B., M.R.C.S., L.R.C.P., R.N. (Rtd.)

The ship in which I travelled to China was very crowded with more than 1,000 Marines besides the ship's company. The curious thing about this brigade was that although it was composed almost entirely of Marines it was commanded by a senior Commander. The anticipated fighting was to take place on shore and would be in entirely military operation. Of course it may happen that sailors have to be landed to fight on shore and they and their officers are trained to do so, but such duty is incidental and a very secondary part of their profession which is in combined war at sea, whereas it is exactly the reverse in the case of the Marines.

As was to be expected of a crowded ship coming from the Red Sea in August we suffered badly from the heat. The thermometer did not rise much above 96° in the shade, but the wet bulb was almost the same, the wind, what there was of it, blew steadily right astern and at exactly the same speed as that of the ship, and all the time the sky was overhung with thick leaden clouds, so that there was no radiation. A combination of these conditions was of course just what produces hyperpyrexia. We had to deal with some 30 cases in the space of 48 hours, and in the absence of ice and electric fans it is astonishing that only two cases ended fatally, both were Chief Petty Officers who had been treated as second class passengers with the usual generous diet much more than they had been accustomed to. They complained of febrile symptoms and quickly became deeply cyanosed and comatose. One so far improved under frequent hosing on the upper deck and vigorous fanning that he was able to get up and walk about, but he relapsed and died 24 hours after the commencement of symptoms. The other man remained comatose until death after the same period of illness. Their maximum temperatures were 110° and 108°. They were buried at 0700 and almost immediately afterwards the wind shifted, the clouds disappeared and the other patients made a rapid and complete recovery.

Aden, the Red Sea and the Persian Gulf are in my experience stations where unhealthy living persons are more liable to heat stroke than in other parts of the world. I have experienced a heat wave at Shanghai where the dry bulb rose to 106° in the shade but the fatal humidity was absent and I heard of no cases of hyperpyrexia.

[illegible] Concert [illegible] Marines [illegible] Tientsin

[illegible] which [illegible] Smith was [illegible] the platform [illegible] by the pianist and proceeded to render in a perfectly beautifully [illegible] baritone the song A contented mind is as feast in kind so what care [illegible] the world go by [illegible] When he finished there was a long hush of [illegible] during which he could be heard gracefully thanking the [illegible] recumbent He then acknowledged the prolonged and thunderous [illegible] from his enormous audience with the aplomb and self assurance of a [illegible] accustomed to such tributes The song was the topic of conversation in the wardroom for some time but we never discovered the singer's identity or why he had enlisted in the marines in which promotion from the ranks was then unknown All he would say was that he was fond of singing and so were his people

China

The rest of the voyage was uneventful and on arrival at Hong Kong the Brigade was landed to practise route marching We were all very much out of training in spite of constant P T and drilling during the voyage Imagine our rage and disappointment on arrival at Wei hai Wei when we received the shocking news that the Brigade was too late to go into action as Peking had been relieved and the Boxers completely defeated We were informed that all the officers and men of the Brigade would be split into several parties and sent to various ships to take the place of the sick and wounded in the recent fighting So I had sacrificed my leave and my strong claim to a home appointment for nothing I thought but how often have I found that things have turned out all for the best I discovered that owing to the large number of sick and wounded the little sick quarters at Wei hai Wei had been expanded into a large base hospital and that the staff was under manned and overworked Here was a chance to get more hospital experience which would compensate me for my lost chances of active service I wrote to the Commander-in-Chief's Secretary a private note briefly explaining my disappointment and asking him to use his influence to get me appointed to the base hospital as I ventured to think my recent years experience in Port Royal Hospital might be useful in the treatment of cases of dysentery and enteric fever It so happened that the section of the base hospital set apart for medical cases had every bed occupied with patients suffering from these diseases The Medical Officer in Charge had just been invalided and I was appointed in his place One of the first things I noticed there was that the latrines closely adjoined the larder and that swarms of flies could be seen passing from the excreta in the earth closets and urinals to the food in the larder

I think this job was about the busiest I have ever had while I held it I had neither time nor inclination to leave the place except for an occasional short walk At one time I was so short of nursing staff that I had to call upon a nearly empty U S Hospital ship to lend me assistance These men were very

highly trained and well paid, most of them came from graduation after three or four years at Johns Hopkins Hospital in New York.

After about six weeks more surgeons from the Fleet became available and things became easier. I found the work of absorbing interest. My duties included that of anæsthetist to the surgical base hospital. My Chinese cook and boy served me devotedly and I was comfortable and as happy as one could be in exile. But dysentery attacked me on three different occasions and on the last my colleagues insisted on sending me home. Before I left I was visited by Admiral Seymour himself who sat by my bedside for some time. I was not surprised at his enormous popularity. I had never seen him before but he was just as kind as if I had been an old friend.

One of the officers who came on board the mail steamer to see me off was Lieutenant Roger Keyes, then a very delicate looking young man who had distinguished himself by breaking out of his ship to join in the march to Peking and managing to be one of the first people to enter the besieged legations. I next met him three years afterwards when we both played cricket for the Navy at Devonport.

On the voyage from the Wei hai Wei to Hong Kong I went down with typhoid fever when we arrived in the late afternoon I had a temperature of over 104° with very severe headache. It was considered too late to send me to hospital that night so I was put in a cabin on board the Guard Ship or Depot. Unfortunately this cabin was situated immediately under the gangway and as luck would have it the wardroom were giving their annual dance that night. What with the noise of the band, the dancing, the talking and laughing, the flirting of couples sitting out on the gangway bulkhead I had no chance to sleep apart from my splitting headache and disordered intestines. All this was torture and the next day the journey from the depot ship to the hospital in a sickbay cot was worse. Every step of my bearers was agony the distance was about two miles. I am still wondering why there was no ambulance even in those primitive days. If the Powers that were had experienced my trip to the hospital they would have ordered ambulances for every hospital. I wonder too that I never heard a murmur from any of the motionless patients I had sent to hospital in the customary barbarous cot. I suppose they thought that this system of transport of sick persons was the best available and nothing could be done about it. I did what I could to raise the point but I was only a surgeon.

My colleagues at the hospital I shall always remember with gratitude for their kind care and consideration but most of all do I remember the Chinese night attendant detailed to look after me. His devotion and quiet deft nursing left a great impression on me. I found his early morning coffee the most delicious and stimulating drink I had ever tasted. I was longing to go home so my kind doctors allowed me out of bed at the earliest possible moment. I remember being so weak that I was quite unable to walk a step.

During the night before the mail steamer in which I was to sail for home

arrived Hong Kong was struck by one of its worst typhoons The hospital was built in a very sheltered situation on the side of the Peak, but it was feared that its roof would go My only fear was that my steamer would be delayed or damaged Next morning I was conveyed in a cot to the harbour where I saw the enormous keel of a dredger which had been turned turtle and the masts of a gunboat which had been sunk by the huge seas running inside this land locked harbour I was told that hundreds of sampans had been wrecked and lost with all hands Morning had brought calm and sunshine and although I was put straight to my cabin I felt as happy as could be The moral effect of being on my way home to my wife and people was so great that when the ship arrived at Singapore I was strong enough to walk ashore and cable Well—home soon

Taken as it was in winter time the voyage home was throughout very pleasant It was nice to revisit Colombo Aden Port Said and Valetta The Gulf of Lyons gave us a dusting and being in a hurry I took the short cut home across France from Marseilles My wife met me in London and we went together to see the Director-General now Sir Henry Norbury who had very kindly guided my earliest footsteps in surgery when I was on vacation from Barts Hospital I lived in the Naval Hospital Plymouth with my father who was cashier there for ten years and Sir Henry was then the Senior Surgical Officer He used to take me on his rounds through the wards and took a lot of trouble to teach me surgery He now told me that he was pleased at my volunteering to forgo my leave to go to China and hinted that there would be a vacancy at the Plymouth Royal Marine Barracks in a few months and in the meantime as soon as I had had my deferred leave I should be appointed to the *Cambridge* Gunnery School

I disliked the monotony of my duties here which consisted of frequent trips up the channel in a small flat bottomed bluff bowed gunboat fitted with a relatively big gun The job was to put the seamen gunners under training through a course of firing at a target towed by another vessel I understand that these gunboats were built for the Baltic campaign As we used to go out in any weather there was a good deal of sea sickness but no other work for me As the job took the best part of a whole day I grudged the waste of my time especially as the noise and movement of the ship made reading impossible At length I suggested that I might be landed on the breakwater fort so as to be handy if my services were required and yet be able to study

It was however a great relief to get my appointment to Plymouth Division R M L I Here my job was to look after the women and children taking turns with another surgeon to be responsible for any fresh cases amongst the officers and men and going the rounds of the infirmary at the appointed times

The P M O who reserved to himself the treatment and disposal of the officers and other ranks would always give sound advice when asked about difficulties with women and children I liked the work immensely but would

[illegible] men and their [illegible] if they were [illegible] of the city fen [illegible] were the only drawbacks in this very pleasant job. I got [illegible] nets and as many cricket matches as there were days of the week almost. The duty surgeon was allowed to play cricket matches and if a call came for him he could be fetched by an orderly on a bike in a few minutes. I was fortunate enough to play regularly for the United Services, the Marines, the Navy and even for any regiment which was shorthanded. I had my glorious seasons finishing up with a memorable first wicket stand with my successor who was one of the best cricketers in the Navy.

In the course of my rounds in Stonehouse visiting women and children I often met the Vicar of the Parish who told me that the Lord of the Manor, the Earl of Mount Edgecombe had invited him to play golf on his private course in the beautiful Mount Edgecombe Park whenever he could spare the time and to bring with him any golfing friend. He could spare the time every Saturday and Monday for one round and for two winters I was his grateful opponent. The deer and rabbits kept the fairways in perfect condition. Hazards were natural woods, ponds and patches of gorse and ferns. It was an ideal place for a tyro and many of the most interesting and enjoyable rounds of golf in my life took place there. The views from the course are some of the loveliest sea and landscapes in the world.

Shortly after joining the Marines I was awarded my first war medal for my service at Wei hai Wei base hospital. Decorations were much scarcer in those days among naval officers than they are now and therefore considered of more value.

My wife and I were very fond of our little official residence with its little walled garden and its proximity to the sea and the city. It was indeed very lucky to have held during my Service as a Surgeon two appointments carrying with them an official residence.

Promotion to Staff Surgeon

Promotion to Staff Surgeon after twelve years sent me back to sea but first I was given a most enjoyable and valuable three months postgraduate course at my old hospital, Barts. At that time one was allowed to choose the form which this study took and one was mentally placed on one's honour to be diligent in work and self improvement. I reported myself to the Dean but neither he nor any of the professors exercised any supervision over my activities. It was very pleasant to renew my acquaintance with fellow students now demonstrators and rising specialists and to attend lectures on surgery, medicine and pathology, to watch post mortems and to revisit the museum and library. I am sure I should have derived more benefit from my studies if they had been guided and supervised as I believe is the practice in the present day.

My next appointment was to the *Furious* as Principal Medical Officer. This

was a small first cruiser just launched from the Meltherriocan where my predecessor had been invalided to pay off at Chatham and recommission for the Channel Squadron. There was at this time a very agreeable Service custom attending the paying off of H.M. Ships. All the wardroom mess traps were theoretically supposed to have become worn out and not worth sending and returning to store for repair or embellishment and resale so they were regarded by the Admiralty as the property of the wardroom officers who could dispose of them by auction sharing the proceeds among themselves. Consequently our paymaster was able to hand each of us an equal and most acceptable little sum of money. As I had joined the *Furious* only a few days before she paid off I did not expect my new messmates to allow me to share but they decided that by the K.R. & A.I. they could not exclude me even if they wished to. I was grateful for this windfall but more was to come. After we had sold the old mess traps and driven the new ones from the dockyard the Admiralty changed their minds about the *Furious* and decided that she would require such a long refit that she must go into reserve. Accordingly she again paid off and her personnel was transferred to a second class cruiser of a new improved type. Finally our paymaster should have disregarded his legal right to sell the new mess traps of the *Furious* and carried them over to the *Hermes* but he arranged another public auction collected another much larger sum as proceeds and handed each of us a very large windfall as our share. Some after this transaction had been carried out and a new lot of brand new mess traps driven from the dockyard an Admiralty official of civilian rank wrote a haughty letter and peremptory note to the Paymaster instructing him that in the case of the second paying off of the *Furious* the relevant K.R. & A.I. were not to be carried out and the mess traps of the *Furious* were to be taken over by the *Hermes*. The Paymaster wrote regretting but the latest order about the mess traps had arrived too late for the necessary action for compliance as they had already in accordance with K.R. & A.I. been sanctioned and purchased by various people. We never heard anything further of the matter and I imagine that the Admiralty clerk thought it prudent to lose the file lest he should be reprimanded for being too late.

Were the officers who received their share of the proceeds of the second auction dishonest in accepting it? After all they did so in compliance with the K.R. & A.I. and with the knowledge and presumably the approval of the Captain. No one except the taxpayer suffered by the transaction and so far as I know no taxpayer was aware of suffering on this account. Indeed all the taxpayers I have spoken to on the subject seemed to enjoy the story except my father who as a senior officer of forty years in the Paymaster branch considered the incident deplorable.

(To be continued)

Clinical Notes and Cases

A COMPOUND COMPOSITE ODONTOME

BY

Surgeon Commander (D) L A MOULES, R N

A pat ent aged 18 complained of vague discomfort in the left upper inc [illegible] and on examination it was seen that the temporary lateral incisor was retained and there was a slight bulging of the outer alveolar plate in this area

Radiographs revealed a mass of dental tissues in relation to the apex of the root of the temporary tooth which had prevented the normal eruption of the permanent lateral incisor

At operation the abnormal growth was [illegible] which are shown in the photograph together [illegible]

Correspondence

CHARLES DARWIN AND THE ROYAL NAVY

SIR,

In the last paragraph of my article, Two Important Naval Contributions to the Practice of Vascular Surgery which appeared in the *Journal of the Royal Naval Medical Service* for July 1949 (pp 152 154) I cited Charles Darwin and James Lind as illustrious members of the Royal Naval Medical Service. As regards Darwin this is a mistake as my friend Surgeon Commander J J Keevil, now Keeper of the Library of the Royal College of Physicians has kindly pointed out to me albeit it is perhaps a pardonable one because he tells me that an old official advertisement for the Medical Service used to describe Darwin as a naval doctor and the belief that he was a naval surgeon is a widespread one It will be quite clear however from Doctor Keevil s delightful account of Benjamin Bynoe (1804–1865), Surgeon of the *Beagle* (*Journal of the*

R N Medical S [illegible] 1949 pp 251-268) that Bates and Darwin is the *Beagle* [illegible] when Darwin made his [illegible]

Since [illegible] David Fleming's carotid ligation in [illegible] Arris and Gale lecture which [illegible] published in the *British Journal of Surgery* for July 1947 (p 43) an excellent [illegible] the life of David Fleming by J J Keevil has appeared (*British Journal of Surgery* July 1949 (pp 92-95)) and those who may be interested in this [illegible] this officer would do well to consult this article

I am etc

LAMBERT ROGERS

Surgical Unit
The Royal Infirmary Cardiff

PROCAINE PENICILLIN IN ALUMINIUM MONOSTEARATE

SIR

Complaints have reached me about the difficulties of extracting this drug from the bottles in which it is put up

It has been found here that if a wide bore needle—a transfusion needle is ideal—cut down so that about ½ in from the shank is left no trouble is experienced in getting the required dose out of the bottle and that if the bottle is turned upside down the entire 10 c c can be removed

In very cold weather warming the bottle in the hands for a few minutes is sufficient to make the contents fluid No other form of heating should be used

I am etc

H T BELCHER
Surgeon Commander, R N

Sick Bay (G)
H M S "Phœnix"
Portsmouth

Reviews

THE MIDDLESEX HOSPITAL By Hilary St George Saunders First Edition 1949 [illegible] pp [illegible] 6 full plates in colour and 29 illustrations in black and white London [illegible] Price 8s 6d

[illegible] is specifically stated it is fair to assume that this book was commissioned [illegible] with a view to preserving the individual sagas of the Middlesex [illegible] colourful life stories of our great voluntary hospitals [illegible] Full monochrome of State Control At all events this is [illegible] has been effectively and tastefully achieved

[illegible] versatility as a writer compels the most sceptic admiration has told the [illegible] vicissitudes and triumphs which have brought the Middlesex Hospital from the most humble beginnings to discern the grand title of A Great National Institution He has told it with practised skill sympathetic insight and [illegible] It must appeal to many besides those directly connected with the hospital

[illegible] challenge [illegible] of the book [illegible] illustrations [illegible]

[illegible] recommended with the [illegible] confidence

FRACTURES AND DISLOCATIONS IN GENERAL PRACTICE. By John Hosford M.S., F.R.C.S. and revised by W. D. Gallie F.R.C.S. Second Edition. 1949. [illegible] 87 illustrations. London: John Wright & Co. Ltd. Price 21s.

Treatment of broken bones now requires so much in the way of equipment, [illegible] work and of radiological control that with few exceptions fractures [illegible] treated adequately and economically in hospital. The general practitioner [illegible] may not be called upon to [illegible] treatment in an urban district. [illegible] fractures may wish to keep up to date with modern methods. He should be able [illegible] his patients who have sustained fractures what form of treatment [illegible] expect and how long they may have to remain in hospital. Patients like [illegible] and expect some treatment [illegible] than the fracture case.

This book is invaluable in respect. It is not a book for the specialist but [illegible] the general practitioner just what he wants to know quickly and clearly. It does not try to give detailed treatment but [illegible] which [illegible] an overtreatment. It is clear, concise and easily read. The illustrations are good [illegible] the substitution of a guide for the X-ray picture would be an advantage.

GERMS. JUDGE WORLD TODAY. By Dr. Sidney A. Harris. A Golden Book [illegible] presented in Dr. Harris on the occasion of his completion of 50 years of medical practice. Published privately by the Sperling Company, New York. 1949.

This small book of 38 pages gives a brief account of the American pediatrician and a resume of his work and the particular emphasis given his research in the problem of antipyretic treatment of the hypothermia of 1918 and his observations on the human therapy for the infant sufferers of the [illegible] in 1924.

A brief biographical note of his career in medical research follows and then an account is given of the speeches delivered at the golden jubilee dinner held in his honour at the New York Academy of Medicine on 5th April 1949.

The 'Golden Book' contains letters of tribute from 101 physicians, pediatricians and dietetists throughout the world as well as from medical organizations of 21 countries.

The last page contains a bibliography of 18 published works concerned in pediatric subjects written by this great American physician.

We acknowledge with thanks receipt of the following publications —

Anales de la Facultad de Medicina de Montevideo. Annals of Tropical Medicine and Parasitology. Archives de Salud Publica. Army Medical Services Magazine. Bulletin de Sanidad Militar. British Medical Bulletin. British Medical Journal. Brooklyn. Bulletin International des Services de Sante des Armees de Terre de Mer et de l'Air. Bulletin of the University of Marchpol. Chronicle of the World Health Organization. Clinical Journal. The Bowman Gray School of Medicine. Journal of the Medical Association of Eire. Journal of the Royal Army Medical Corps. Journal of the Royal Naval Scientific Service. London Hospital Gazette. Medical Journal of Australia. Medical Press, Middlesex Hospital Journal. Military Surgeon. Netherlands Journal of Tropical Medicine and Hygiene. Proceedings of the Staff Meetings of the Mayo Clinic. Revue de Medecine. Revista de Medicina Aeronautica. St. Mary's Hospital Gazette. St. Thomas's Hospital Gazette. Tropical Diseases Bulletin. Ulster Medical Journal. United States Armed Forces Medical Journal. United States Medical Technician Bulletin. United States Naval Medical Bulletin. University of Durham Medical Gazette.

News of the Service

OBITUARY

We regret to report the following deaths and extend our sympathy to their relatives

Surgeon Captain LIDBROOKE FRANK COPE *OBE* R.N. (Ret.) died in Paris on 17th December 1949 at the age of 71 whilst still actively engaged in general practice. Born in York-shire on 3rd January 1878 he was educated at Lancing College and St. George's Hospital. During his long and active life he took part in three wars. In the South African War he was a trooper in the Naval Cairbineers, rose to the rank of Sergeant and was later besieged at Ladysmith.

After qualifying he joined the Royal Navy in January 1904 and during the World War I he was a member of the British Naval Mission in Greece attached to the British Legation and was serviceable in Turkey and Serbia. He received decorations from all these countries and was awarded the *OBE* for his work in organizing food and medical relief in the Balkans.

He last served in H.M.S. *Vernon* retiring as Surgeon Captain in 1928.

Immediately on retirement he engaged in general practice in Cosham. During World War II in addition to his practice he was Honorary Surgeon to the Portsmouth Division of the St. John's Ambulance Brigade and a Major in the Home Guard. In the early part of the war he dealt with hundreds of air raid casualties.

After the war he played a leading part in the organization of the Cosham General Relief Committee formed to provide help and fellowship to many elderly people in the district.

Surgeon Captain Cope was a man of lively intelligence with a fund of humour. In his many other spheres he had a good speaking voice used in amateur theatricals and broadcasting. His old shipmates regret his passing but admire the full use he made of his physical and mental qualities for the benefit of the Services and the community at large.

Surgeon Captain H. M. BRAITHWAITE R.N. (Ret.) died on 10th November 1949. Born in May 1882 he qualified in 1904 and joined the Royal Navy Medical Service as a Surgeon in November 1904. He was promoted to Surgeon Lieutenant Commander in 1912, Surgeon Commander in 1917 and was placed on the Retired List in April 1932 in the rank of Surgeon Captain.

During the First World War Surgeon Captain Braithwaite served in H.M. Ships *Blenheim*, *Foresight* and *Tyne*.

Surgeon Captain W. P. HINGSTON *CB* R.N. (Ret.) died on the 16th January 1950. Born on 16th September 1879 he qualified in 1903 and joined the R.N. Medical Service as a Surgeon in November 1903. He was promoted to Surgeon Lieutenant Commander in 1911, Surgeon Commander in 1917 and was placed on the Retired List (age) in September 1929 in the rank of Surgeon Captain.

During the First World War Surgeon Captain Hingston served in H.M. Ships *Lion*, *Angora* and *Sentinel*. He was awarded the *CB* (Mil.) in recognition of gallant conduct displayed and valuable services rendered on the occasion of the earthquake and fire in Yokohama in 1923. By his gallantry and presence of mind he was the direct means of saving the lives of the large number of refugees who sought escape from the fire in the grounds of the R.N. Sick Quarters, Yokohama.

Surgeon Captain P M MAY R N (Rtd) [illegible] 1949 Born in August 1869 he qualified in 1892 and joined the R N [illegible] as a Surgeon in March 1892 He was promoted to Staff S[illegible] December 1900 Surgeon Commander in 1906 and was placed on the R[illegible] May 1922 in the rank of Surgeon Captain During the First World War [illegible] in H M Ships *Empress of India* and *Pembroke*

Surgeon Captain J H PLAD R N (Rtd) died on 24th December 1949 Born in June 1868 he qualified in 1894 and joined the R N Medical Service as a Surgeon in May 1894 He was promoted to Staff Surgeon in 1902 Surgeon Commander in 1908 and was placed on the Retired List in June 1921 in the rank of Surgeon Captain

During the First World War Surgeon Captain Pead served in H M Ships *Minotaur* and *Dreadnought*

Surgeon Captain A A SANDERS *O B E* R N (Rtd) died on 20th November 1949 Born in March 1883 he qualified in 1907 and joined the R N Medical Service as a Surgeon in May 1909 He was promoted to Surgeon Lieutenant Commander in 1914 Surgeon Commander in 1920 and was placed on the Retired List (age) in the rank of Surgeon Captain In March 1933

During the First World War Surgeon Captain Sanders served in R N Hospital Haslar and in H M Ships *Constance* and *Clio* He was awarded the *O B E* (Mil) for valuable service as Senior Medical Officer H M S *Clio* in Russia

After he was placed on the Retired List Surgeon Captain Sanders was employed as Final Examining Medical Officer Birmingham from 1936 until 1939

Surgeon Lieutenant Commander C M V SMITH R N (Rtd) died on 26th November 1949 Born in January 1877 he qualified in 1907 and joined the R N Medical Service as Surgeon in November 1903 In 1911 he was promoted to Surgeon Lieutenant Commander and was placed on the Retired List on his health in November 1918

During the First World War he served in H M Ships *Changtumlo Himalaya* and *Berwick*

Fleet Surgeon J BARRY R N died on 13th June 1950 Born in December 1862 he qualified in 1885 and joined the R N Medical Service as a Surgeon in January 1886 He was promoted to Staff Surgeon in 1898 Fleet Surgeon in 1902 and was placed on the Retired List at his request in August 1907

HONOURS AND AWARDS

Companion of the Bath

Surgeon Rear Admiral J A Maxwell *C V O C B E* M B B Ch F R C S (Rtd)

Commander of the Order of the British Empire

Surgeon Captain T N D'Arcy L R C P & S D O M S

Officer of the Order of the British Empire

Surgeon Commander A E Flannery L R C P & S

Associate of the Royal Red Cross

Miss E M Mercer Q A R N N S
Miss A I Mitchell Q A R N N S

PROMOTIONS

Promoted to Surgeon Captain
Surgeon Commander W P F McIntyre
Promoted to Surgeon Captain (D)
Surgeon Commanders (D) C J Finnigan D L Simpson

Promoted to Surgeon Commander
Acting Interim Surgeon Commanders [illegible] Lamb J Lees D W Pratt
Promoted to Surgeon Commander (D)
Acting Interim Surgeon Lieutenant Commanders (D) S J Atkinson [illegible] K F J Fletcher W J Wolton
Promoted to Acting Interim Surgeon Commander
Surgeon Lieutenant Commander J W Walker
Promoted to Surgeon Lieutenant Commander
Acting Interim Surgeon Lieutenant Commanders N S Marshall
Promoted to Acting Interim Surgeon Lieutenant Commanders
Surgeon Lieutenants J W Burke C N Shell
Promoted to Acting Interim Surgeon Lieutenant Commander (D)
Surgeon Lieutenants (D) R R B Gjertsen K Milne

TRANSFERS TO THE PERMANENT SERVICE

Surgeon Lieutenant C Pollitt RN
Temporary Surgeon Lieutenant P D G Pugh RNVR
Acting Interim Surgeon Lieutenant Commander (D) F B C Cliff RN

ENTERED FOR SHORT SERVICE COMMISSIONS

R Brooks MB BS W H Harper LRCP MRCS P H Holden LRCP MRCS D C MacDonald MB ChB K P O'Byrne LRCP LRCS J D G Tripp LRCS LRCP J McAllister Williams MB ChB

RETIREMENTS

Surgeon Captain J Wylie (age) Surgeon Commander T F Green (medically unfit) Surgeon Lieutenant R W A C Barton (medically unfit) Surgeon Lieutenant C J Sutcliffe (medically unfit)
Surgeon Captain (D) J T Wood (age) Surgeon Lieutenant-Commander (D) A C H [illegible] (on request) Surgeon Lieutenant (D) K T Lowen (on request)

WARDMASTER OFFICERS

PROMOTION

Promoted to Acting Commissioned Wardmaster
S B C P O R P Hunsome

RETIREMENT

Senior Commissioned Wardmaster F Wilson (Age) Granted War Service rank of Wardmaster Lieutenant

ADMIRALTY FLEET ORDERS

66—Medical—Penicillin—REPORTS

(M D G 25367/49—6 Jan 1950)

Supply Supplies of Penicillin are available for distribution to H M ships and Naval Establishments in which a Naval Medical Officer is borne Initially Medical Officers of H M ships may demand supplies according to the scale laid down in B R 1232 Scales of Medicines etc for Service Afloat Amendment No 4 (A L O P 213/49 refers) Replenishments to this quantity may be demanded as necessary At Home R N Medical Establishments and depots should demand from The Superintending Pharmacist R N Hospital Haslar For R N Medical Establishments and depots abroad and H M Hospital ships *see* paragraph 2(b) below

M[illegible] to [illegible] all issues of [illegible] is to be [illegible]

(*a*) *R N H*[illegible] A monthly [illegible] month and [illegible] on the 15th [illegible] Medical Director General of the Navy [illegible] This [illegible] and is not limited [illegible] apply

(*b*) *R N Medical* [illegible] *Hospital Ships* [illegible] in (*a*) above is [illegible] the Medical Director General of the Navy [illegible] will be [illegible] this [illegible] quantity of penicillin to be dispatched

(*c*) Stocks of penicillin [illegible] R N [illegible] one month's [illegible] Hospital ships may maintain such [illegible]

(*d*) It is emphasized that [illegible] penicillin maintained in R N Hospital Haslar is small and [illegible] this up it may make it impossible to supply any to a [illegible] establishment during the subsequent month

(*e*) In the event of an [illegible] requiring replenishments appreciably in excess of the [illegible] month the repair ship will be accompanied by an [illegible] of the circumstances necessitating this increased demand

3 *Stock Remaining on Closing of Establishment In Home*—Stocks of penicillin remaining on closing of an establishment [illegible] H M ships and hospital ships are not to be surveyed They are to [illegible] R N Hospital Haslar [illegible]

Abroad—Stocks of penicillin [illegible] establishment are to be retained in the nearest R N medical [illegible]

4 Laboratory control assays of [illegible] penicillin [illegible] preserved in sealed ampoules [illegible] reasonable conditions of storage are adopted The ampoules should not be subjected to temperatures above 24 C (75 F) [illegible] Those dated ampoules should always be used first

(*R R 1[illegible]*)

(*A L O 404/46 cancelled*)

Medical Dental and Hospital Consultants

(*vide* A F O 105)

110.—Officers—R N Medical and Dental Officers—Private Practice—Revised Regulations

(C W 14898/49 13 Jan 1950)

Consequent on the transfer of the Naval Health Service the question of Medical Officers and Dental Officers in the Royal Navy engaging in private practice has been under consideration The existing regulations are contained in Article 1449a of Kings Regulations and Admiralty Instructions It has been decided by them that these should be amended so as to enable Medical and Dental Officers of the Royal Navy and to comply with the following principles as regards private and civilian practice

(*a*) A Medical or Dental Officer is not permitted to make any private arrangements involving the acceptance of responsibility on a regular or continuous basis for the medical or dental care of individuals or groups of individuals on a fee paying basis neither is he permitted to accept paid hospital or other appointments

(*b*) Thus medical and dental attendance on civilian civilians and their families at

[illegible] work-ing hours [illegible]

(c) A Medical [illegible] with his special [illegible] hospital or other [illegible] recognised [illegible]

(d) A Medical [illegible] in discretion of the Medical [illegible] Central [illegible] Committee [illegible] and subject [illegible] prescribed [illegible] work [illegible]

(i) [illegible] dis-[illegible]

(ii) [illegible] dis-[illegible]

(iii) medical [illegible]

It should be [illegible] importance of persons [illegible] Medical and Dental Officers [illegible] that Medical and Dental Officers [illegible] they are [illegible]

(e) When fees are charged [illegible] Service [illegible] 30 per [illegible] charged fee to be [illegible] 30 per [illegible] shall be paid to the de[illegible]

(f) Consultations [illegible] which are [illegible] payable under the National Health Service [illegible] consultations will be [illegible] Medical or Dental Officers be [illegible] National Health Service [illegible] work. There [illegible] specialist Medical or Dental Officers being [illegible] occasional [illegible] for [illegible] Service pursuant) under the National Health Service [illegible] the same [illegible] and [illegible] Medical or Dental Officers [illegible] Medical or Dental Officers [illegible] Regional Hospital Board [illegible] hospital [illegible]

(g) Where [illegible] consultant under the National Health Service [illegible] Medical or Dental Officer [illegible] the National Health Service [illegible] endorsed to the effect [illegible] National Health Service [illegible] will pay [illegible] National Health [illegible]

(h) Medical and Dental Officers should [illegible] the National Health Service [illegible] which [illegible] Special [illegible] Ophthalmic [illegible] who [illegible] glasses for the dispensers of Service [illegible] Ophthalmic [illegible] Central Pool [illegible] Committee [illegible] List of Practitioners [illegible] qualifications [illegible] supplied [illegible] accepted [illegible] Ophthalmic Services Committee of the Executive Council for the area in which he wishes to undertake this service for the purpose. The names in the Committees

Ophthalmic List [illegible] will be [illegible] the Service Ophthalmic List [illegible]
Article 1449a K R and A I will be amended

***178.—Allowances—Tuberculosis Allowance**
(N 2/N 41/50—20 Jan 1950)

With effect from 24th November 1948 an extra daily allowance of [illegible] and 3d a day for women is payable to RN and WRNS Sick Berth [illegible] VAD members who are nursing pulmonary tuberculosis patients or which [illegible] completely isolated when nursing patients suffering from for example [illegible]

2 This allowance is in Category A of the Appendix to Chapter XI [illegible] Allowance Regulations (A F O 1295/49)

(A I Os 1795/49 and 3898/49)

327.—Medical—Suspected Contacts with Infectious Disease—Notification of Movements
(M D G 24124/49—3 Feb 1950)

When an officer or rating who is under medical surveillance because of [illegible] contact with a case of smallpox cholera typhus fever plague or yellow fever [illegible] to leave his/her ship or establishment it is essential that arrangements be made for the surveillance to be continued

2 The Medical Officer concerned is therefore to inform the Naval Medical Officer of Health of the Command by signal of the following details —

(a) name rank or rating of individual concerned
(b) date of starting journey
(c) destination (full address)
(d) disease with which contact is suspected
(e) last date of possible incubation

3 The Naval Medical Officer of Health will then notify the appropriate authority who will arrange for surveillance to be continued

(K R and A I Art 1389)

Medical—Vaccination and Inoculation
(Vide A F O 398 and A F O 539)

JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE ANNUAL REPORT, 1949

BALANCE SHEET

Assets	£	s	d	Liabilities	£	s	d
Balance in Bank 31 12 49	516	5	6	Sundry Creditors [illegible]			
Cash and Stamps 31 12 49	2	9	4	Outstanding [illegible]	186	4	3
3 Treasury Stock	100	0	0				
3½ War Loan	600	0	0	Balance Carried [illegible]	1032	10	
	£1 218	14	10		£1 218	14	10

Audited and found correct
H R Crosser Lieutenant (S) R N

Notice

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Journal
of the
Royal Naval Medical Service.

Editorial

WE are very gratified to note that there has been of late a considerable increase in the number of subscribers from amongst the Officers of the Royal Naval Dental Service we welcome our confrères and hope that they will find the Journal both interesting and instructive

At the present moment it must be admitted the majority of articles deal with medical and allied subjects but it is hoped that Dental Officers will contribute their share of articles etc so that the Journal in the future may become representative of both Services Articles dealing with all aspects of dental practice will be much appreciated

We would also like to remind all our subscribers that the columns of this Journal are open to correspondence regarding subjects of interest to Medical and Dental Officers

Articles

GERONTOLOGY[1]
OR
THE PROBLEMS OF OLD AGE

BY

SHELDON F DUDLEY F R S

M D G July 1941 *to December* 1945

He taketh away the understanding of the aged Job xii 20

THE solutions of the social problems concerned with old age are getting more and more urgent as the number of old people in Britain grows larger and larger Indeed the study of old age has become important enough to justify the creation of a new science gerontology

[1] An Address (brought up to date) delivered to the South Place Ethical Society 20th November 1949 It has not been published elsewhere

One of the results of the industrial revolution was that it enabled this small island to support a very much larger population. At the time in 1800 and 1900 the numbers in Britain were about 10 to 40 million respectively. It seems that such an increase cannot go on forever though there are people who behave as if this was a consummation to be expected and desired. It should have been a foregone conclusion that improvements in the standard of living, preventive medicine and feeding customs would be found to make the average expectation of life increase so that when the checks to expansion of population came into operation once more the oldest age groups of the population would increase relatively at the expense of the younger age groups.

This is what is happening today. If we use the official definition of old persons as those who are qualified for an old age pension i.e. males over 65 and females over 60, then in the year 1880 only 1 in 16 of the English nation were old people, but in 1946 this ratio had more than doubled, as 7 million out of 40 million are officially old people, which is a ratio of 1 in 7. In a population ageing at this speed it should not be long before we are jostled off the pavement by bathchairs instead of perambulators.

The age distribution of a population is a function of the birth rate and of the expectation of life. The English birth rate has been declining up to the war period, but has now reached a figure which seems unlikely to vary significantly for three or four decades at least. The expectation of life on the other hand has been increasing and is likely to continue to increase as long as there is room to improve the social health of Britain. The practical effect of this increase in the longevity of the English people is perhaps easiest to envisage if put this way. In 1946 only one in seven or 15 per cent of the contributors to National Insurance were qualified for old age pensions, but so rapidly are the upper age groups of the population increasing that in 1970 one in three or 33 per cent of the contributors will have qualified (under the present regulations) to draw their old age pensions.

Longevity may be potential or specific. Potential longevity is the theoretical longest expectation of life under optimum conditions. Potential longevity depends entirely on the hereditary constitution of an individual, indeed the chief factor in living to a great age is to have been conceived as a "good egg" (zygote). Specific longevity is the duration of life under special or specific circumstances, such as the degree of risk of infection, type of occupation and standards and habits of living. A stroll round any English country churchyard will show how the common liver up to late Victorian times effectively destroyed many children before they reached the age of 1. Similarly inspection of the tombstones in Bermuda naval cemetery will reveal how a hundred years ago yellow fever cut down the sailor's expectation of life. Occupation has sometimes a terrible effect on shortening life. The Pottery industry was perhaps the most dangerous of all trades owing to a combination of lead and flint dust poisoning (plumbism and silicosis). Potters used to succumb with ghastly rapidity to that dreaded condition of the lungs known as potter's rot. Formerly dry flint grinders rarely survived two years at the trade and in the eighteenth and nineteenth centuries the average age of a potter at death was 40. At the

this and it the longest we find the clergy. The quiet, busy and secluded life of the majority of country parsons, combined with their usual praiseworthy temperance in all things, makes the priesthood the longest living of human herds. Fishermen, if they avoid being drowned, are also among the long livers. This is unexpected, as in addition to the great hardship of deep-sea fishing, the atmosphere in a trawler's cabin when at sea is such that the hatch has to be lifted now and again to admit a fresh supply of oxygen, when the lamps or the occupants' pipes go out—a feat for "fresh air fiends" to ponder. There is a great similarity in this respect between life in a submarine and life in a trawler. In a submarine matches will not strike, and oil lamps go out (at about 2 per cent. CO_2) long before the carbon dioxide tension is considered dangerous to the human occupants (about 3 per cent.).

There is an old fashioned legend that, as the result of their strenuous efforts in the field of sport, athletes were liable to die young of "strained hearts" (whatever that nebulous diagnosis meant). This hypothesis is a mere *a priori* conjecture—a conclusion without any statistical foundation. The mythical disease known as "athlete's heart" has been debunked by many physicians. For example, Hartley and Llewellyn (1939) investigated the subsequent medical histories of all rowing "blues" from 1829 to 1928. They found that the subsequent mortality among these "blues" was less than that of the assured lives of a comparative group of non-rowing men. Studies of a far greater statistical universe by the American Insurance Companies showed that athletes and ordinary university graduates in America had the same expectation of life (46 years at 22). Strange to relate, however, the same studies showed that the "honours" men of the same universities had a significantly longer expectation of life than the average. The cause of this latter observation is rather surprising, because one would have thought that the "honours" man would have been more delicate and less robust than the athlete and therefore not as good a life in the insurance sense. It may be, however, that athletes and ordinary men are more adventurous and are exposed to greater risks of exotic diseases, or spend more time falling off horses, mountains, ships and aircraft than the studious man who prefers to spend his leisure reading in an armchair.

Moreover, the athletic type is more prone to indulgence than the bookish man. And overeating is a more dangerous form of exercise than mountain climbing or motor racing. However, this is a mere speculation, but one which might be well worth following up as a statistical research, should there be suitable data available in the large insurance offices. The effects of diet on the length of life have been studied by experiment, and these experiments show that there is an optimum balance of nucleo-protein and vitamins necessary to obtain the *potential* longevity of any species. Experimental overfeeding shortens longevity as most of us have suspected. A Yankee physiologist many years ago perpetuated the wise crack, that the most obvious sign of malnutrition in New York was obesity, and Insurance Companies weight their premiums against overweighted fat men. Alcohol in moderation does not appear to shorten life, but tobacco is said by some physicians on somewhat slender grounds to shorten life even in moderate quantities, especially in those

who already suffer from sudden defects. However, great influences are likely working to increase special longevity. Improved hygiene has reduced the risks of infection. Industrial safety first, legislation and occupational hygiene have succeeded to a great degree in removing the hazards from dangerous trades. Most dietitians are convinced that in spite of all the protests to the contrary from those who have to eat owing to the wartime rationing of food, it is better distributed and diets are better balanced than ever before. Rationing has ensured that there is far less malnutrition due to either starvation, gluttony or lack of vitamins and other necessary substances. It is however universally admitted that food today is more monotonous and less appetizing than before the war, anyhow among the privileged classes. Although this sameness of diet may have some effect on general happiness, as good feeding, apart from overeating, is a natural and a harmless pleasure, yet no appreciable effect on the duration of life should be caused by this monotony.

The rapid increase in the higher age groups of the population is compelling more and more attention to be paid to gerontology and demography (population problems). These subjects therefore are rapidly becoming important branches of sociology, and a new medical specialism — geriatrics — as the disorders of old age becomes the antithesis of paediatrics, the disorders of children, and a new *Journal of Gerontology* have been instituted to study the disabilities and other matters associated with old age.

The preservation of the health of the aged, especially their mental health, should be a special duty for the State. The austerity rationing and other restrictions of these days, including the decreasing number of young relatives to help them, the modern neglect of home life, and the passing of the institution of the family, has hit many old folk very hard. Recent reports which have drawn the attention to the wretched plight of some lonely old people are awakening the public conscience. By force of circumstances many of the aged poor are today often lonely, dirty, ill fed, ill housed, and miserable. They have become or are made to feel that they are unwanted nuisances and parasites on society. Social surveys indicate this rotten state of affairs is largely unnecessary, or at least could be greatly ameliorated. With a little trouble, kindly discipline, persuasion, and common sense many of these neglected old people could be made happy, clean, and self supporting citizens and add their quota of work to the wealth of the country, instead of degenerating into chronic invalidism, losing their self respect, and remaining a burden on the rates and taxes.

The care of the aged and the exploitation of their capacity for useful work would be a far more rational, ethical and profitable policy than the expenditure of millions of pounds on the care of lunatics and criminals, necessary as this may be in the name of humanity.

It will soon become a financial necessity, as well as a social duty, to organize the productive potential of the old, as the ever increasing proportion of unproductive old age pensioners in the population cause the Treasury more and more anxiety. For if things are left as they are, the extra cost of the rapidly growing number of unproductive old age pensioners will have to be borne by

the dwindling number of younger productive citizens [illegible] travel beyond endurance. At the last International Congress on Mental Health (London, 11th–21st August, 1948) Dr. L. Cheng pointed out that in China before its ancient civilization had been destroyed by the Western barbarians, with their peculiar ideas of culture and progress, the aged Chinese had no mental worries, the understanding of the social functions of the institution of the family being perfect, so that it was the primary, biological, automatic duty of Chinese children to care for and attend their parents in their old age as a matter of course—yet another example of the superiority of the social culture and ethical codes of ancient Cathay compared with the moral codes of the barbarians, which have now overrun them from both East and West.

Before the industrial revolution and the advent of the cinema, motor bus, popular newspaper, and birth control, something similar to the Chinese child's responsibility for its parents still existed in Britain, especially in the country. At that time the family was still generally a self-contained immobile, stable, and continuous institution, which automatically and subconsciously looked after itself and its homestead from the birth to the death of all its members as they flowed down the stream of life.

The method by which the main problem in gerontology of the future might be solved has already been hinted at. Old men are not nearly as old today as they used to be, the very fact of their increasing numbers is proof of that. Most men of 65 are not nearly dead, and in these days of lavish expenditure on social security it would be more economical, more sensible, kinder, and more charitable to spend some of the cash at present squandered in pensions and allowances in organizing or subsidizing the employment of the old men in part-time jobs and lighter work, when they get past doing their usual life's work. Some progressive business firms have already done enough pioneer work on this problem to prove that it is an eminently practical and profitable policy.

The social health worker who possesses any vision is *very, very* worried about all this "social security." Business there is something *very, very* wrong about a system which encourages (however unintentionally) the idea that work is evil and leisure is only useful if one can *be amused* by professional entertainers, jockeys, greyhounds, film stars, professional footballers and other gladiators. *To amuse oneself* is too much like that evil thing, work. Again, of course, this is only a superficial aspect; an unknown but large percentage, perhaps more than three-quarters of the populace are hard working men with a keen interest in some hobby, be it gardening, fretwork, Greek literature or even ethics which occupies all their spare time.

While in a humane society, indeed even in a rational society, the *innocent* individual who is mentally or physically defective through no fault of his own must be cared for, yet today it would seem that a premium has been placed on unfitness. Therefore our unscientifically planned "Social security," in which the psychological factors are very largely ignored, is already having an undesirable effect in encouraging the lazy, thriftless and unintelligent at the expense of the energetic, thrifty, and bright members of the species. The

problem of how to help and encourage the genuine and deserving victims of fate and at the same time to discourage and penalize the idler the waster the sponger the spiv and other self-seekers is a vast problem for the statesmen of the welfare state—only to be solved by patient research and many painstaking experiments in social psychology

Therefore at least let us try to keep our old men keen interested and happy by employing them in useful congenial occupations for as long as possible Let us stop destroying their souls before their time as we do at present, by taking the easier path of bestowing on the aged larger and larger gifts of cash which they would be happier earning

Productive work is the only real wealth Therefore about half the wealth of those who work with hands or brain is employed in keeping the non productive minority of the community the children the sick the idlers and old age pensioners Plus tension combined with the fact that improvements in social health have increased our expectation of life by ten to fifteen years should make us encourage our *healthy* old men to work and to spend their extra lease of life (according to their ability) in adding to the wealth of the nation in happy productive employment rather than waste that wealth in miserable idleness deteriorating in body and mind as they drag out their last days doing nothing on a pension

Of course many influential trade unionists and politicians would denounce such a scheme as utopian impractical and a gross infringement of the liberty of the individual But some day not so far off some such scheme will have to be implemented as has been the case with so many improvements in social health which the autocratic old men who rule us our gerontocrats had at first condemned as impractical impossible fantasies until instructed public opinion finally forced them to take action Methinks in this context I hear an echo from just a hundred years ago when a tyrannical government was accused of interfering with the sacred freedom of Englishmen by preventing them from employing their infant children in the coal pits for sixteen hours daily Today a century later we are agitating for the employment of our old men to save them from the loneliness and boredom of retirement and in so doing to save the rising generation from the exhaustion of carrying their grandfathers on their backs as parasitic Sinbads when with a little sympathetic and rational organizing the majority of grandparents might be transformed into helpful symbiotic partners in industry

The second problem in gerontology which is of supreme importance in social health is the antithesis of the first namely the uprooting of the old men who have dug themselves into all the positions of influence and power for too long This is the problem of the tyranny of the old men gerontocracy ' While it is better for the old to remain employed as long as possible it is not essential that the old chiefs managers and directors should continue in undisturbed occupation of the higher administrative and responsible key appointments after their mental powers are definitely on the wane The younger more virile intelligent and enterprising younger men ought not to be kept waiting for years hoping for their moribund masters to retire or die before they get a chance of stepping into their shoes

During the last war the fighting services attempted to rejuvenate the civil gerontocracy by giving higher commands to younger officers of proved worth, and by rigorously enforcing the rules and regulations regarding retirement for age. But the old senior officers' experience was not wasted in wartime because in a manner which is worth careful study by civilian governing bodies in peacetime nearly all hit retired officers were re-employed in less responsible and less onerous jobs suitable to their age and strength. In the Royal Navy this custom has been loyally observed for many years and throughout the last two World Wars. There is no suggestion of loss of dignity when high ranking senior officers on the retired list return to the sea to be employed as junior officers in order to aid their country and the Royal Navy at war. Admirals who go to sea as junior officers only enhance the respect they earned on the active list as Commanders in Chiefs. For example we have the saga (Hunt 1941) of the converted pleasure yacht H.M.S. *Campeador V* which was commissioned by retired senior naval officers, some of whom were originally appointed to her as sub-lieutenants. It is alleged these aged sub-lieutenants requested that they might be promoted to Lieutenant as being well over 60 they felt that they had got grown the gunroom atmosphere and therefore would like to be granted ward room status. But once the stony hearts in Whitehall were softened and the request was granted when Winston Churchill supported their plea on the grounds that "Youth must be served". Incidentally the navigator of *Campeador* I was one of my old P.M.O.'s Surgeon Rear Admiral J. R. Muir, F.R.C.S. who besides being a first class operating surgeon held a master's ticket as an ocean going amateur yachtsman. These gallant old gentlemen all died with their boots on when the yacht was sunk by enemy action on 22nd June 1940—a better way out than lingering on for a few years to die in bed as a state pensioner or in a company director's chair suffering from senile dementia. There is no reason that I will of why some such convention of retiring at 50 to 60 to be re-employed in less responsible or arduous jobs should not become routine in peace as well as war ashore as well as afloat except for the usual "it is impracticable fantastic and unrealistic" of the aged politicians and the antiquated bureaucrats who generally have the last word in deciding their own imaginary indispensability. But the distressing fact remains that many of our civilian institutions clerical legal and medical are all under the thumb of gerontocrats who though well past their prime are fastened into their jobs.

Professor Bernal (1939) at the age of 38 was of opinion that gerontocracy is the greatest factor holding up the advance of science. I confess I had this conclusion a slight over statement but I expect that that is because I happen to be a has been gerontocrat myself. There is however a substratum of truth in Bernal's contention and I have enough insight to realize that physically and mentally I am not the man I was twenty years ago.

Usually intelligence as measured by psychologists reaches its peak between 20 and 30 years of age and thereafter declines slowly till death (Wechsler 1941). But for a variable number of years the effects of increasing experience and accumulating knowledge far outweighs the fall in measurable intelligence on an individual's wisdom judgment and carefulness. Physically

also a man is at his best between 20 and 30 years of age Performance in those most strenuous competitive sports like running rowing swimming and boxing which require a man to be a hundred per cent all out all the time usually decline rapidly after the age of 30 though there are unique exceptions to prove the rule such as the Olympic hurdler Wing Commander D O Finding who was still able to break his own records when the wrong side of 40 However just as with potential mental capacity experience and practice can mask the decline of intelligence for ten or twenty years so in games of skill and other pursuits where the expenditure of energy is periodic and the development of maximum horse power (mind power ?) is not often required as for example in billiards bridge lawn croquet golf knitting cricket gardening carpentry and shooting actual skill and performance may increase long after the brake horse power has started to fall with the deprecation of the human engine Cicero for example is strongly of the opinion that the qualities of a healthy old age outweigh the loss of physical activity and mental alertness of youth In *De senectute* the most famous of all essays on old age he deprecates all those who despise dread or fear old age Cicero however admits the principle that the child is father to the man and insists that a wise respected old age is of necessity the offspring of a well spent intelligent youth and maturity Cicero undoubtedly was over sanguine in his estimate of the extent to which caution judgment force of character and tolerance increased in old men and compensated for the loss of the impetuosity passion virility energy and mental alertness characteristic of youth

In striking a metaphor Cicero asserts They advance therefore no argument of any weight who say that old age is not actively employed and they resemble those who would maintain (if there be any such) that the pilot is not employed in navigation when some are climbing the masts others running up and down the decks others pumping out bilge water while the mariner sits at his ease at the stern holding the rudder He may not be doing what the young men do but in truth he is much more arduously and much more profitably engaged It is not by physical strength or speed or bodily agility that great actions are performed but by counsel by force of character by judgment of which faculties old age is wont not only to sustain a decrease but even to receive an increased development

Cicero appears therefore to take the diametrically opposite view on gerontocracy to Bertal and most modern thinkers who deplore the principle of government by elders The truth doubtless lies between the two views

Progress in science commerce and social health (politics) require to make use of the driving power of intelligent passionate active and enthusiastic youth but youth's inexperience and impetuosity must be leavened with the wisdom of conservative experienced disillusioned but learned old men Cicero if I dare criticize such an authority is really comparing youth with experienced maturity not with old age Few of us old men who can think rationally would deny except when we have finally reached our dotage that a *good* middle aged man is a better guide philosopher and friend than a *good* young man or a *good* old man The point is again largely psychological We

old men fall back on over-estimating the value of experience. We fear to admit even to ourselves any deterioration whatever in the power of judgment and logic though we have to admit the waning of our physical powers.

So loudly indeed do we proclaim the wisdom of old men that until recently the callow youth who had never been old believed that there was some indefinable quality of old age in itself that gave extra value and a specific credence to [illegible] elders' judgments or decisions.

The experiments which indicate that man as a thinker as well as power unit is at his best before 30 are confirmed in a really startling manner by the observation that most great geniuses in the scientific sphere have done their most original creative work before they reached the age of 30. Newton formulated the Law of Gravitation and invented the calculus (Fluxions) before he was 24 years old. Joule had proved experimentally the Law of Conservation of Energy before his 29th birthday and Einstein had completed his most original work on General Relativity before he was 25. This is a startling reversal of most people's preconceived ideas on the age distribution of intelligence, judgment and mental capacity. However not all old men have deceived themselves in this respect. Anatole France when over 70 wrote: "Everyone entertains the foolish idea that old men are wise. They are cautious, nothing more. They are less intelligent than they were in the prime of life."

Well has Job said: "God taketh away the understanding of the aged."

This fact is well known in some scientific circles. Indeed in a recent broadcast Sir Robert Watson Watt (1950) pleads that in research institutes a chance should be given "for each able scientific youth to make contribution to science before he passes his peak of originality, somewhere round age 25 and before age 31 and then to pass on to other useful avocations." Sir Robert goes on to say: "Big industrial concerns could divert the senescent researcher about age 30 into the channels of development, design, production, direction and administration." I must say 30 seems a bit early for senile decay to be a handicap even though the earliest signs of the decay appear at that age.

Gerontocracy has caused some heart searching and discussion among the Fellows of the Royal Society, 50 per cent. of whom are over 60 years old. It is doubtful if the younger scientists have enough representation in the Empire's premier scientific body. It is difficult to see how this defect, if defect it be, can be avoided, because except in the exceptional chance of an exceptionally brilliant man tumbling in to an unique discovery, which is also obviously new and unique to other experimenters, it must generally take a time lag of some years before a young researcher's work can be confirmed as being a sufficiently important fundamental and original addition to knowledge to merit special recognition. The same line of reasoning applies to the higher ranks and the more responsible jobs in all the professions, commerce and industry. A youngster unless a genius needs a long time to prove his worth. If gerontocrats are as serious a menace to progress as Bernal would have us believe, then every effort must be made to get rid of them and give younger and less rusty men a chance to direct and take charge not only in science but also in the legislature, the fighting services, industry and medicine.

In [illegible] age at such different rates exhibit such extreme differences in the [illegible] and acquired mental equipment and in the power of learning from experience that a more difficult and complex problem than the suitable age at which to enforce retirement is hard to imagine Many a gerontocrat of 70 though he may have been a better man at 60 or 50 yet is still at 70 worth more to his trade firm or profession and country than a less gifted man of 50 or 40 But after all Bernard Shaws and Winston Churchills are few and far between the exceptions who prove the rule

From my own subjective experience I get the idea that decreasing intelligence and drive and increasing knowledge of one's job and the world in general habitue at about 50 after which the fall in general efficiency sets in with a variable acceleration I am sure however there is a good case for examining schemes by which men at 60 can retire into less strenuous less responsible and less influential positions and be replaced by younger selected men

There is certainly every reason for giving the rising generation many more seats in the commercial legislative academic and scientific councils of the nation The law the church and worst of all some of our educational institutions have no means of escaping the rule of the old men who may hang on to their courts livings and professorships till they die In the dark ages as H G Wells pointed out to the talking professions a man could only be as old as his teeth because the edentulous could not speak with dignity and authority Thus the lack of artificial dentures was a blessing in disguise in so far as it saved the people from the tyranny of the old men

A characteristic of senility is the habit of garrulous and reminiscent about the great achievements of their youth and tedriously to harp on the good old times to the disparagement of the rising generation of young men With shame I confess I often catch myself out at this game—a sure sign that the arteries in my brain are hardening This habit has existed from the beginning of time

If there was a grain of truth in this old man's dream then logically each new generation should be a degenerated model of the generation astern of it and any improvement in the human race since Adam's days could only be a delusion The psychological reason for the old man's grouse against the young is his unconscious regret for his own lost youth and waning powers—an obvious and specific emotional catharsis of old age Incidentally Sam Johnson as a sick old man of 74 shows his genius by rising superior to this weakness of the aged for says he I am always angry when I hear ancient times praised at the expense of modern times There is now a great deal more learning in the world than there was formerly for it is universally diffused This comment is as true today as it was in 1783 It is perhaps providential that most of us old men whose brains to various degrees are worn out rarely have enough intelligence and powers of introspection left to recognize that we have become old dull and silly

This problem of discarding the gerontocrat seems to be the antithesis of the larger problem of finding suitable employment for the old men There is

however [illegible] that gerontocrats should not be [illegible] we only want to [illegible] them is *gerontocrats* in order to [illegible] where they no longer have the last words of command [illegible] the power of making decisions to take action or generally [illegible] The retired gerontocrat with no job is often a pathetic figure. The poor old Admiral for example once the terror of the quarter deck and centre of all the ceremonial pomp and circumstance on naval occasions now stands forlornly at the end of the fish queue hoping that the fishmonger once the coxswain of his barge has kept him a couple of kippers for old times sake.

This discourse is frankly provocative it is earnestly hoped however that it draws attention to what is rapidly becoming one of the most vital and urgent questions in the economics ethics and the social health of this country whose old age pensioners will have doubled in number within another generation unless *social experiments are inaugurated at once to discover the best way of using our healthy old men.*

Thanatophobia

It is relevant to say a few words about death to end any discussion on old age. The fear of death is a manifestation of the instinct of self preservation the natural tendency to cling to life. We can appropriately call fear of death "thanatophobia." Cicero is would be expected of a true Roman dubed death. He was also a true agnostic because he maintains whether death is the end of all things or the gate to another life there is nothing to fear as in the first instance one is sure not to be miserable and in the second instance one may even hope to be happy.

Though writing in the character of Cato who was supposed to be 84 at the time Cicero we must remember was himself never very old he was a well preserved man of 63 when he was assassinated. Cicero as we saw also praised and admired many of the characteristics of healthy old age.

On the other hand that good natured but observant mindel Anatole France who disliked and sneered at old age lived into his 81st year and he obviously felt in himself the mental deterioration and physical disabilities which accompany real old age and he hated it. He also complains that "Old age is cruel to men even when it brings no physical suffering as it brings them nearer to death."

Another most interesting contrast in the attitude of two great intellects towards death is exhibited in the lives of the devout churchman Dr Samuel Johnson and the sceptical philosopher David Hume. The doctor was an obsessional hypochondriac and the main cause of his neurosis was without much doubt an abnormal and morbid fear of death. Johnson knew he was neurotic because according to Boswell Johnson said that "The great business of his life was to escape from himself this disposition he considered as a disease of his mind which nothing cured but company. A morbid fear of death or thanatophobia haunted him all his life. Johnson himself however insisted that "Fear of death is but natural. So much so Sir that the whole of life is keeping away the thought of it." However Trendhans would remark

that for once Johnson here shows himself a p[illegible] for peace of mind it is better far to face death cou[illegible] of consciousness than trying to repress the idea of d[illegible] where it may become a source of neurotic symp[illegible]

Hume in contrast though an atheist was a m[illegible] I will and understanding He faced death and eternal oblivion without any sign of fear with unflinching courage and even made jests on his death bed as to what he should say to Charon as he crossed the Styx His doctor reported that Hume died in such a happy composure of mind that nobody could exceed it

When Johnson was informed that Hume the atheist was not afraid to die he said that Hume was either mad or a liar for he (S J) never had a moment in which death was not terrible to him yet in ordinary matters he was no moral or physical coward As far as it is possible to read between the lines it was the *annihilation* of his ego that Johnson really dreaded He compensated his thanatophobia by the intensity of his religious devotion and his frantic attempts to be certain of immortality He would not consciously admit any doubt of immortality and on one occasion excused his fear of death on the ground that he could not be certain that he had not earned eternal damnation I doubt Johnson s sincerity here as some people rarely believe that they themselves are damned—it is always the other fellow However a belief in having committed the unpardonable sin is alleged to be a common symptom of mental disease and Johnson was certainly not mentally normal But consciously or unconsciously it was not damnation but annihilation Johnson feared and later he practically admits it because at the age of 69 when a lady who said annihilation was just nothing and therefore not to be feared Johnson made reply Mere existence is so much better than nothing that one would exist even in pain than not exist and then goes on to say The lady confounds annihilation which is nothing with the apprehension of it which is dreadful Therefore Johnson evidently preferred to be damned than annihilated

Johnson in spite of his devotion to the Christian creed had grave doubts of immortality which he was never able to repress completely hence his bitterness against Hume and other infidels S J said Hume and other critical innovators are vain men and will gratify themselves at any expense Truth will not afford sufficient food for their vanity so they have betaken themselves to error If I could have allowed myself to gratify my vanity at the expense of Truth what fame I might have acquired ! Everything which Hume has advanced against Christianity had passed through my mind long before he wrote Johnson here exhibits a common attitude of the believer towards the agnostic The former cannot conceive that the latter is sincere in his disbelief The Christian often deems that confessed infidels are hypocrites who deny God as a form of intellectual exhibitionism they are merely showing off in order to gain a cheap notoriety

In several passages S J implies that any dirty trick is justifiable in dealing with an infidel For instance when Boswell holds forth saying When the controversy is concerning the truth of religion it is of such vast importance

to him who maintains that the person of an opponent ought not to be spared he will hate him *as odious* though the infidel might think himself right' Johnson expressed his agreement with Boswell and thus joins forces with the Jesuits and Communists Marx and Lenin in condemning the principle that it is ethical to disregard your code of ethics Christianity or Communism for the purpose of its defence!

Elsewhere S J practically confesses he is himself a subconscious infidel when he exclaims Every man who attacks my belief diminishes in some degree my confidence in it and therefore makes me uneasy and I am angry with him who makes me uneasy Thus poor old Johnson himself supplies the reason for his spiteful and ungenerous remarks about Hume What an eye opener too is the unwitting admission that he had pondered and worried over Hume s arguments against the Christian faith and could have improved on them had he not too much respect for the truth Johnson envied and hated Hume for having solved the mental conflict between the fear of annihilation and the hope of immortality by courageously accepting and scorning the oblivion of death—the conflict which Johnson himself never solved the conflict which remained a buried mental complex responsible for much of his depression and neurosis throughout his life

However Dr Brocklesby who was present at Johnson s death reported that at the end his fears were calmed Thus the poor old gentleman had a fair passage West in spite of all the mental distress the thought of it had given him during his voyage through life

Most men today after two world wars must have experienced the very real phenomenon of Dutch courage —that fear is inhibited by the power of alcohol to dull the imagination and I strongly suspect from personal observation at many death beds of many types of patient dying from many different causes that the dying intelligence as the result of partial deprivation of O_2 (Anoxia) or of toxemia is in the same happy state of suspended judgment as the mind poisoned with alcohol or other narcotic drug

Samuel-Johnson s abnormal fear of death is in harmony with the speculation that the religious doctrine of immortality was originated by a universal fear of death that the promise of life beyond the grave has been manipulated in many religions as a bribe used by the priesthood to discipline their flocks

For example H G Wells (1936) wrote Man alone of all animals looks beyond the laws of nature and becomes aware of death awaiting for him at the end All religions all philosophies of conduct stripped down to their bare essentials express the consequent impulse to escape this inherent final frustration

Personally as an old physician I do not believe that fear of death is such a powerful ally of religion The healthy ordinary man does not worry much about death until the time comes and the dying rarely exhibit signs of fear Nevertheless as the life of Dr Johnson proves thanatophobia can be an appalling obsession with some unfortunate people

Also I do not find any association between a man s creed and the degree with which he fears death Many Christians face the end as bravely as Hume is

the infidel and many atheists are as terrified of the obliteration of their ego as poor old Johnson the *Christian*

Again I do not believe that in general the old fear death any more than the young In my own experience I was much more afraid of being killed as a young man in World War I than in World War II In the first period there was so much I wanted to do before I died But in the latter period I knew I had savoured all life had to give me, and although life still remains desirable death does not appear such a terrible disaster in my old age as it did in my youth I can quite understand how when life becomes a misery from chronic pain and incurable disease death may be a merciful release and the desire for it most rational

Euthanasia

When living becomes an intolerable burden from the mental and physical agony of an incurable illness then a voluntary easy death artificially inducted i e *euthanasia* is a rational and merciful form of treatment Euthanasia is a form of therapy consistent with the highest code of ethics provided that the physician is satisfied the pain is unrelievable and death inevitable This is especially true when euthanasia not only sets free the patient but also ends the mental distress and perhaps the wasteful sentimental sacrifices of the time or money of the patient s friends and relatives Thus we can sympathize with Philoctetes the archer who had inherited the bow and poisoned arrows of Hercules Philoctetes was in agony from a septic wound of the foot accidentally inflicted by one of these arrows whose poison was believed to be always fatal therefore he cried aloud to Thanatos the God of Death 'Come Death amiable Death sole cure for ills unbearable for no pain can reach the dead for evermore Philoctetes was chosen as the example of a patient craving euthanasia because he also points the moral as to how careful the physician must be that his patient s prognosis is hopeless before administering this only permanent and certain analgesic euthanasia

Here is the anticlimax in the case history of Philoctetes Before succumbing to his wound he was fetched to Troy because an ancient prophecy asserted his presence there was necessary to raise the siege and therefore the famous surgeon Machaeon with Apollo as his anaesthetist successfully operated and cured the incurable wound of Philoctetes the Archer

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THE INTERVERTEBRAL DISCS AND SCIATICA

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A GREAT deal has been written on this subject. I have previously discussed the evidence (Rogers, 1945, 1946, 1947) now widely accepted that sciatica is due to irritation of one or more of the roots of the great sciatic nerve and that such irritation is usually the result of a lesion of the fourth or fifth lumbar intervertebral disc.

It may be of interest to trace the story of our knowledge of these disc lesions and see what is their nature, why they are liable to take place, and what may be done for the relief of the sciatica which they cause.

HISTORICAL

As long ago as 1858 Hubert Luschka, in his monograph on the spine, referred to the occurrence of posterior nodal protrusions of the intervertebral discs and correctly interpreted these as chordal remnants. He noted two cartilaginous protrusions on the posterior face of the intervertebral discs, in one instance between the bodies of the twelfth thoracic and first lumbar vertebræ of a man aged 45, in the other between the second and third lumbar vertebræ of a man aged 36, and gave it as his opinion that "the parent tissue of the gelatinous cartilaginous protrusion was the nucleus pulposus of the intervertebral disc." In 1896 Theodor Kocher of Berne dissected the body of a man, John Messerli, aged 26, who had succumbed to multiple injuries after falling 100 feet from the top of a building and landing upon a stone pavement on his feet. He had difficulty in moving his legs and pain in the lower part of the abdomen. There were multiple injuries, including rupture of the bowel from which he died some hours later. In addition to fractures of the sternum and one ulna, lacerations of the jejunum and peritonitis, the intervertebral disc between the first and second lumbar bodies had been squeezed out from between them. The bodies themselves and the spinal cord appeared to be undamaged.

In 1887 the first successful removal of a spinal tumour[1] was performed by Sir Victor Horsley at Queen Square.[2] Following this, the diagnosis and removal of spinal tumours gradually became common practice and by 1926 Charles Elsberg of New York had published a series of over 100 cases of

[1] This tumor (Specimen 5063 (1)) was unfortunately destroyed when The Royal College of Surgeons was hit by a high explosive bomb on 10th May, 1941.

[2] Elsewhere I have related the story of this operation as it did not by the late Sir Charles Ballance who assisted Horsley at the operation. (*Brit. Med. J.*, 1936, 1, 1009, and 1937, 2, 420.)

spinal tumour which he had operated upon Among these were [illegible] of doubtful pathology classified as chondromas or myxochondromas [illegible] when later these were re-examined it became apparent that some of them were in reality extruded nuclear masses from ruptured discs In [illegible] second series (1932) of 108 operations for tumour compression of the cord ventral chondromas (probably disc remnants) were found fourteen times In 1911 G S Middleton and J H Teacher in Glasgow reported the case of a man aged 38 who felt something snap in his back while lifting a heavy weight and was unable to straighten himself The same night he felt as if his legs had become dead and he could no longer move them He had a complete flaccid paralysis of the lower extremities with anæsthesia to the level of Poupart's ligament along with incontinence of urine and faeces He died of urinary infection sixteen days after the injury and at autopsy a posterior herniation of the disc between the twelfth dorsal and the first lumbar vertebræ was found

In the same year J E Goldthwait in Boston reported the case of a woman aged 39 who developed flaccid paralysis of the legs after manipulation of the spine under anæsthesia At operation performed by Harvey Cushing no abnormality was found except some narrowing of the spinal canal at the lumbosacral junction The patient made a slow partial recovery after the laminectomy The cause of the symptoms was considered to be rupture of an intervertebral disc In 1929 a clear description of two cases was given by W E Dandy who recognized the nature of the cartilaginous masses and entitled his report Loose cartilage from intervertebral disk simulating tumour of the spinal cord Compression of the cauda equina with sciatica was present and Dandy compared the loose cartilage which he successfully removed in both cases with the loose cartilage found in osteo chondritis dissecans described by König in 1888 In 1928 a case of disc extrusion causing symptoms was recorded in detail by T Alajouanine and D Petit Dutaillis of Paris and in 1934 W J Mixter and J S Barr in Boston drew general attention to the subject by reporting a series of such cases

We now know that either backward bulging or rupture of the annulus fibrosus and the extrusion of nuclear material is a commonplace occurrence and that most cases of so called idiopathic sciatica are due to root irritation (radiculitis) caused by such movement or extrusion

Anatomy

The intervertebral disc consists of upper and lower cartilaginous plates containing between them nuclear material surrounded by an annulus fibrosus The annulus consists of laminated white fibrous tissue which merges into the softer resilient pulp or nuclear material which represents the primitive notochord or chorda dorsalis Craig Mooney (1945) has pointed out that the notochord may not always have been centrally placed and that an eccentric position of the nuclear material may in some cases be a factor leading to its extrusion The fact that in the young at least the nuclear material is normally under tension also renders it liable to extrude should a weakening or rupture of the annulus occur

The discs in the [illegible] lumbar region which [illegible] to be nearly half an inch in depth

Comparative Anatomy

Some animals have an ossified nucleus pulposus The vertebræ and the intervening discs of the swordfish (*Ziphias Gladius*) must be put under great compressive strain when it drives the sword home but as the nuclear or central parts of this fish's discs are bony extrusion cannot occur Not all fish have bony discs Sir Everard Home (1809) commented that when he was examining the internal structure of a large fish *Squalus Maximus* he met with a peculiarity in the intervertebral substance— a limpid fluid gushed out with so much velocity that it rose to the height of four feet In man also the nuclear content of the discs is sometimes under high tension

Why do disc lesions occur?—It is well known that the intervertebral discs degenerate with advancing years and perhaps this is not surprising at a time when degenerative changes are widespread Extrusion of nuclear content giving rise to sciatica frequently occurs however in quite young subjects and there may be several factors which influence this such as a congenital one of an eccentric position of the noto-chord to which reference has already been made and the heightened tension of the nuclear content in the young Possibly also changes in the tissue of the discs brought about by hormones diet or other influences may be contributory while injury whether in the form of a severe strain or of repeated minor ones plays an obvious part in some cases In many cases of sciatica due to disc lesions in young people however there is no clear history of injury

Whatever the cause of these lesions it is a curious thing that they occur so frequently in young healthy persons

If in a case of sciatica we can exclude causes such as malignant disease in the pelvis and tumours of the spine or cauda equina we can be fairly confident that a disc lesion is responsible

Treatment of Sciatica

The Importance of Lumbar Puncture in Investigating Cases—In most cases, disc lesions which cause sciatica do not produce any degree of encroachment on the spinal canal Occasionally however the lesion is massive (fig 1) and then they do so The only positive indication for early operation in cases of sciatica is the presence of such a massive extrusion or of a tumour For this reason in all cases of persistent sciatica lumbar puncture should be carried out to ascertain the protein content of the fluid It is advisable also to see whether the Queckenstedt phenomenon is present and of normal type If from these observations we can be sure that there is no spinal block present there is no immediate indication for operative treatment If as is usually the case the protein is only some 40 to 50 mg or less per 100 c c there is every indication to be conservative and we should remember that rest or manipulation will relieve many sufferers and that sciatica is a self limiting disease of which no one ever dies In the course of time the irritability of the root subsides and the pain disappears

FIG. 1.—Massive [illegible] sacral disc sequestration in a land army [illegible] aged 30 [illegible] and sciatica. Extensors denervation

Conservative Treatment. If the fluid is normal conservative treatment may be safely practised (bed rest (medical in bed or orthopaedic in a jacket) or manipulation may be carried out

Manipulation sometimes produces almost miraculous relief and is safe provided that lumbar puncture has shown that there is no block and the protein content of the fluid is low This may be exemplified by the following case

Sciatica Relieved by Manipulation.—A Commander-in-Chief aged 65 had acute sciatica following a journey in an aircraft The pain was so intense that he was being given morphia for it He said he had had a similar attack five years before and had been cured by a bonesetter who manipulated his back Lumbar puncture showed only 20 mg. protein in an orthopaedic colleague was asked to manipulate his spine under anæsthesia He was hesitant to do so because of the possibility of the patient developing paraplegia and the event however it was agreed to operate forthwith The manipulation was followed by successful and dramatic relief given to the intense sciatic pain

In these cases the manipulation may do one of two things viz eject a sequestrated piece of nuclear tissue into the spinal canal or otherwise free an adherent disc from its attachment to the annulus by breaking down such attachment

The usual story of intractable sciatica which has failed to react to conservative treatment is similar to that of the following case

Operative Treatment Became of Failure of Conservative Procedures. Nucleus Extrusion [illegible] Sciatica.—A [illegible] aged 40 had suffered from pain [illegible] the back of the left leg to [illegible] the great toe He had [illegible] back and subsequent lumbago before the onset of the sciatica [illegible] Lumbar puncture yielded clear fluid with a slightly [illegible] (75 mg.) At operation on the left fourth lumbar nerve root was [illegible] a protruding part of the disc A large sequestrated mass of [illegible] was removed and a special [illegible] mass from within the disc [illegible] He [illegible] and returned to duty as executive officer of a [illegible]

Spinal Block.—If there is evidence of some [illegible] spinal block, e.g. yellow fluid or a high protein content, e.g. 200 mg. per 100 c.c., the modified Queckenstedt respiratory-jugular compression test is positively indication for operation, since the cause of the sciatica in such circumstances is either a tumour or a massive nuclear extrusion which to all intents and purposes constitutes a tumour. Eight per cent. of cases of suspected disc lesion causing sciatica prove to be due to tumours (Love 1944, Rogers 1947) and these almost invariably are associated with a high concentration of protein in the fluid. The value of lumbar puncture in deciding this issue is all important and is fortunately well appreciated in naval hospitals. The following case histories are typical and will serve to exemplify this importance of lumbar puncture.

A senior officer in the Royal Marines, aged 44, began to have pain in both buttocks, down the back of his right leg and occasional twinges of pain in his left leg also. There were no sensory changes, wasting or sphincteral disturbance. Leg raises was limited and the right ankle jerk diminished. The other deep reflexes were present and equal. After some five months of conservative treatment without relief, he was sent to hospital where lumbar puncture was performed and yielded yellow cerebro-spinal fluid which had a very high protein content and clotted in the vacometer. A cerebrospinal tumour weighing 3.1 grm. (fig. 2) was removed and he made a good recovery with complete relief of his pain.

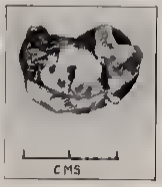
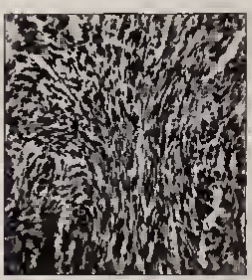


FIG. 2.—Tumour of the cerebrospinal area (neurofibroma) removed from a senior officer in the Royal Marines who complained of back pain and sciatica.

Two years after falling, on lifting his baby, a rating in his 44 began to have pain in the back and sciatica. An orthopaedic surgeon diagnosed a left sciatic pain in a sacralized lumbar lateral crash. On removal of his [illegible] leg, the patient felt well. When lumbar puncture was performed, it was found that the fluid was yellow and contained over 2,000 mg. per 100 c.c. A cerebrospinal tumour was removed, his pain disappeared and he returned to work (fig. 3). This case illustrates the fallacy of ascribing sciatica to congenital bony lesions such as sacralization. The only [illegible] in this connexion is spinal disease.

A spinster, aged 30, had suffered from sciatica [illegible] years, which was relieved by the physiotherapist and never [illegible] since. [illegible] recorded that the contents were 300 mg. per 100 c.c. A cerebrospinal tumour was removed from the great sciatic nerve where the [illegible] part of the [illegible] was adherent. Was removed from the [illegible] there. She [illegible] and [illegible] a gratifying relief of her pain (fig. 4).

[illegible] (meningioma) [illegible] aged 44 [illegible] [illegible] removal [illegible] lumbar [illegible] [illegible] very high [illegible]



[illegible] 39 [illegible]

The necessity of recognizing such cases as the above the importance of lumbar puncture as a means of so doing and the desirability of performing early operation will be apparent

Conclusions

The causes of nuclear extrusion are probably several and various and a congenital factor may play an important part

So called idiopathic sciatica is usually due to an extrusion of nuclear material from or a bulging backwards of either the fourth or fifth lumbar intervertebral disc causing a sciatic radiculitis It is occasionally due to a similar radiculitis produced by other causes such as tumours

If a tumour or an extrusion of disc material so [illegible] as to resemble a tumour is the cause [illegible] operation is indicated. [illegible] and investigation of the cerebrospinal fluid are important to [illegible] whether either is present. (Such is the case in about 12 per cent of cases of prolapsed sciatica.)

If tumours and massive extrusions are excluded treatment should be conservative by such measures as rest radiant heat manipulation or epidural injection. Operation and removal of the nuclear material should only be carried out in intractable cases for which after fair trial other treatment has failed.

Summary

The story of the growth of our knowledge of intervertebral disc lesions is briefly related.

The anatomy of the discs is considered along with the factors which may cause extrusion of their nuclear content. The indications for operation in cases of sciatic radiculitis are (*a*) tumours (*b*) massive nuclear extrusions (*c*) other extrusions only when conservative measures have been well tried and failed. The importance of lumbar puncture and the means of determining these indications are discussed.

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PERSIAN INTERLUDE

BY

Surgeon Commander J. C. GENT, R.N.

I COMMENCE a Stationery Office publication entitled *Paiforce* to the notice of anyone who has served in the Persian Gulf. It is a history of the Persia and Iraq Command from 1941 to 1946 and the emphasis throughout is upon the exploits of the Army to the almost complete exclusion of the part played by the Royal Navy.

In the early days there were two short periods of bloodshed—the first of these was in Iraq and it was caused by the rebellion of one Rashid Ali encouraged by the Germans whilst the second, in which I had the good fortune to take part, occurred in Persia and lasted from 25th August to 20th August 1941.

These events gained little publicity outside the actual theatre of operations. Persia was a backwater about which little was known and it is doubtful if the outside world spared it so much as a thought. If, however, this incident had not ended in a victory for British Arms it is not beyond the bounds of possibility that there might have been world wide repercussions and we might even have lost the war.

It will be remembered that a high proportion of our oil supplies comes from the oil-fields of Persia and Iraq. The Germans were well aware of this and had caused us a lot of trouble by introducing agitators into the country. Their nuisance value was out of all proportion to their small numbers and diplomatic efforts to get them thrown out of the country having failed we were obliged at last to resort to the force of arms.

Chapter XIII of *Paiforce*—Armed Interlude in Persia—is a good account of these events but the average reader could well be excused if he failed to appreciate the part played in them by the Royal Navy, for it is scarcely mentioned. It is true that on page 64 the following words appear—The *Falmouth* which was to give covering fire to the landing parties was now fast aground. There is no mention of the fact that the *Falmouth* got off successfully and was able to play her allotted part, and on the same page we read—But the signal for the landing had been the firing on a Persian gunboat by the guns of the *Yarra*.

Towards the end of the chapter it goes on to say—The Australian Armed Merchant Cruiser *Kanimbla* was steering under darkness towards Bandar Shahpur, the little harbour at which the Trans Iranian railway reached the sea. Aboard the *Kanimbla* were two companies of the 3/10 Baluch Regiment. At the bottom of the same page it says—While landing operations were in progress, ships' crews of the Royal Navy and Royal Indian Navy were boarding the five German and three Italian ships in harbour.

There are fourteen pages in this chapter and there is no other mention of the Royal Navy who took at least as great a part in the operations as the Army and without whom the latter would have been powerless to act

Going back to page 64 again we find the following words At 7 p m on 24th August they had their evening meal and at 9 o clock wearing gym shoes with boots on their backs and with haversack rations the Rajputana is embarked in the little American motor boats called *Eurekas* the Kumaons in paddle boats The boats moved down the dark river stopped for what seemed to be hours moved on at quarter throttle The men crouched in utter silence seeing nothing but the dark wall of palms You would hardly gather from these lines that those self same eurekas and paddle boats flew the White Ensign and were commanded by naval officers and manned by naval ratings

Some of His Majesty s Ships which were involved and received not even a mention in *Paiforce* are H M S *Seabelle* flying the broad pennant of Commodore Graham Senior Naval Officer Persian Gulf H M S *Cockchafer* H M S *Shoreham* and H M I S *Lilivati*

One of the first if not the first ashore at Abadan was a naval officer, Lieutenant Commander Lloyd Warren but this is ignored entirely and perhaps I have said enough to show that the account as it is presented in *Paiforce* is far from complete I hope in this short article to fill in some of the gaps left by the official publication

In the summer of 1941 a number of my shipmates and I were languishing in Bombay Our ship which had a large hole in her side was refitting in the R I N Dockyard she had stopped an Italian torpedo in the Red Sea and had been towed from Port Sudan to Bombay with a steaming party and two guns crews in case we had to fight the ship on passage She was dry docked as soon as we arrived and the first step had been to paint her over with red lead the ship s company had very appropriately rechristened her the *Red Lead Maru* in consequence

We were all living ashore The Captain and some other officers were staying at the Royal Bombay Yacht Club while the accountant officer and I more aloof had gone to the Bombay Club on Marine Drive I had a comfortable room with a large verandah overlooking the sea The food was the best in the City and there was an air conditioned billiard room where it was possible to keep cool A greater contrast to living in one of H M Ships under war conditions would be hard to imagine

There was little likelihood of the *Red Lead Maru* being ready for sea again for many months as in addition to repairs to the hole in her side she required four new boilers B boiler room having been completely wrecked by the torpedo

Our numbers soon began to dwindle One of the first to go was the Captain who was appointed N O I C Massawa Other officers were drafted elsewhere and then people began to disappear up to Basrah This game of Ten Little Nigger Boys proceeded and in due course the Accountant Officer s turn came

I soon followed him and on 8th August I boarded the *Khedive Ismail* with my kit bag and hammock for passage to Basrah Transport arrangements were in the hands of the Master at Arms of my old ship who came to the *Khedive Ismail* to bid me farewell I was deeply touched I was even more impressed when after we left Bombay I discovered that this enlightened individual had left a bottle of gin in one of the drawers in my cabin!

We were escorted as far as the Gulf of Oman by the *Exeter*—little did we know what was in store for her

We reached Basrah without incident on 17th August The sea transport officer who visited the ship gave us no assistance whatsoever so another officer who was to join H M S *Kanimbla* and I were left to fend for ourselves At last we took a taxi to Senior Naval Officer Persian Gulf's office (SNOPG) where one of the cypher staff came to our rescue and advised us where to go and in the end we turned in at about 0300

Next day I joined H M S *Seabelle* and took over officially from my predecessor who had been drafted to H M S *Cockchafer* somewhere down the river probably at Fao The turnover was accomplished without waste of time and he departed for his new ship the same day I made my number on SNOPG and proceeded to acquaint myself with the situation which was distinctly confusing to the newcomer A digression is necessary at this stage to explain the local geography

The name Basrah is often used loosely to include the towns of Basrah Ashar and Margil It is about 50 miles up the river Shatt al Arab from its mouth at the little town of Fao

Thirty miles below Basrah is Abadan where the oil refinery of the Anglo Iranian Oil Company is situated

The old town of Basrah—home of Sinbad the Sailor—is about three miles to the westward of the river Shatt-al Arab on the banks of the Ashar Creek at the junction of which is the town of Ashar The Port of Margil is five miles north of this town near which is a R A F Flying Boat Base which at the time of which I am writing had no aircraft A short distance to the north is the airport with its modern and comfortable air conditioned hotel

Roughly half way between Ashar and Margil and some way inland was an army hospital the 29th Combined General Hospital Originally it belonged to the R A F but the Army had taken it over at the beginning of hostilities and opened it as a combined that is to say British and Indian hospital

The navy was divided between Ashar and Margil The Senior Naval Officer Persian Gulf had his office in Margil but he and most of his staff lived in the *Seabelle* an armed yacht which had formerly belonged to the Governor of Singapore Near the office some W/T ratings with their apparatus lived in a tent and next door was a house which had been requisitioned and was being used as a mess for the Cyphorettes A few of the staff for whom there was no accommodation in the *Seabelle* had rooms at the Airport Hotel The Naval Officer in-Charge Basrah lived in Ashar He had a big house where he and the senior officers on his staff lived near by was a smaller house for the junior officers A third house was used as a naval barracks for about 90 men

and [illegible] [illegible] [illegible]

down in [illegible] point at this stage to a description of *Seabelle's* adventure

We [illegible] number of troops and left our berth at Margil without incident. Our first objective was to illuminate with our searchlight a point of land at Khorramshahr where the Karun enters the Shatt-l Arab to enable *Isan* to run her bows up on the shore, silence any opposition from an enemy machine gun post there, and land her troops.

This went according to plan and we proceeded on our way round the wide bend of the river which leads to Abadan. By this time the battle had started in earnest and gunfire was to be heard and explosions seen from all points of the compass. As we came in sight of Abadan there was a huge bonfire which proved to be the Persian gunboat *Palang* which had been set on fire by the guns of one of our ships. She ultimately sank at her moorings.

Seabelle turned in the stream under fire and came alongside the oil wharf bows pointing upstream just ahead of the R.I.N. trawler *Lilkwati*. She had been fitted with landing bows to facilitate disembarkation and the troops were quickly ashore. A field gun was also landed. The oil wharf at Abadan is protected on the landward side by a high steel fence and the gates had to be burst open under heavy fire before the attack could be developed any further.

Casualties soon begin to trickle back. The wind room was being used as a medical distributing station and our first patient was the Colonel who was brought in with gunshot wounds through the right groin and a fractured femur. In the absence of a Thomas splint I had to make do with a Long Liston's which served its purpose after a fashion. Two more British officers followed the Colonel: one had sustained multiple gunshot wounds from 0.47 mm. cannon shells and was already dead. The other had two bullet wounds in the left side of his chest and died soon after. Some Indian Army other ranks followed.

Wounded prisoners of war began to appear. Most of them seemed to have jumped into the river in a bid to escape and were emaciated in a thick coating of gluttonous mud from the river bed. It was almost impossible to remove it at the time and for all I know they may still be in the same state, so we dressed their wounds and made them as comfortable as possible in the circumstances.

Next came the Chief Officer of a British merchant ship who surprised by the firing had poked his head over the bridge dodger to get a bullet through his face. It entered below his right eye and came out behind his right ear. Apart from shock he was in very fair condition and was lucky not to have lost an eye.

Soon after this I was profoundly relieved to see a naval officer for whom I was beginning to feel considerable anxiety. He had been landed about a quarter of a mile above Abadan from a motor boat in the early stages and his task was to double to the oil wharf, take *Seabelle's* lines and secure her as she came alongside. As all this had to be done in the face of the enemy it was not an enviable job and when we did not see him at the appointed place I feared he was dead or wounded. However he arrived with nothing worse than superficial wounds of the face and axilla having killed one of the enemy and captured his rifle. Many years previously this officer had been one of those who stormed the Mole at Zeebrugge on St. George's Day 1918.

Meanwhile the attack on Abadan continued. A machine gun [illegible] mumbling the wharf caused a lot of trouble but it was eventually [illegible] by *Shoreham's* multiple pom pom. By afternoon the situation was well [illegible]. With the help of the driver of the oil company's ambulance who [illegible] round with a small naval working party I collected the dead and [illegible] them in a tug which took them up to Basrah for burial. The wounded went up in the same vessel and were taken to the Military Hospital at Makina. After their departure we had a short breathing space to take stock of the situation.

Seabelle next went up to Khorramshahr where *Falmouth* was already along side and a little way ahead of her was the wreck of the Persian gunboat *Babr* which had been sunk by the *Yarra*. *Falmouth's* medical officer had had a busy time with casualties and had carried out a very courageous amputation through the shoulder joint of one young officer but unhappily the patient did not survive. There was a wounded Persian officer in the Persian Naval Hospital and I arranged his transfer to the oil company's hospital at Abadan where he died soon after. We learned that the Commander in Chief of the Persian Navy, Admiral Bamlar had been killed leading a counter attack.

Next day *Seabelle* went downstream as far as Fao at the mouth of the Shatt al Arab in order to cover the flanks of the Army as they conducted mopping up operations. There were numerous machine gun posts along the river bank and we quite expected to be swept from them but they were all deserted. An E.R.A. reported sick with appendicitis and I landed him at Fao where there is a small hospital as I did not want a sick man on my hands if there was to be any more fighting.

While these events were taking place in the river *Kanimbla* and *Cockchafer* had been conducting a private war at Bandar Shahpur. They captured eight enemy merchant vessels which had been lying there since the outbreak of

A Lurcka motor boat [illegible]

[illegible]

hostilities and to inspect the [illegible] a floating dock in the bag. Early in the proceedings [illegible] a full calibre shoot using as target a tram which [illegible] at full speed with enemy nationals on board. [illegible] several minor misses were achieved which probably gave the passengers a topic of conversation for years to come.

Next day *Seabelle* went round to Bandar Shahpur to see how things were going and after a short stay returned to Abadan followed by *Kanimbla* and *Cockchafer*. SNOPG transferred his Flag temporarily to the latter and went up the Karun to Ahwaz. Gradually the news filtered through that the Persians had asked for an armistice so the four days war was over and it only remained to discuss the situation from the diplomatic angle.

Soon after this a party was given at Abadan in the *Kanimbla* to which *Seabelle's* officers contributed their share but the main difficulty was to find the necessary stimulant and we were obliged to purchase it from our prospective guests—the members of the Anglo Iranian Oil Company—before the party could materialize. In spite of these difficulties it all came right on the night and everybody enjoyed it.

A few days after this festivity the Commodore and his staff attended a peace conference in Teheran which was to settle our relations with Persia until the end of the War against Germany.

After his return he took a trip in the *Seabelle* down the Gulf as far as Bahrain where we spent a few days. This was a pleasant trip and although the Gulf is still pretty hot in September there was very much of a picnic atmosphere after the exertions of the previous weeks. I visited the American Mission Hospital at Manama and the Bahrain Petroleum Company's Hospital at Awali which is air conditioned and most comfortable. Most of the houses too

were air conditioned and it was most refreshing to step into one of them from the fierce heat outside.

The Naval Base was being enlarged. There was a comfortable mess and an excellent open air swimming bath with running water which was quite cold and refreshing in consequence.

Our stay here was not prolonged and we returned after an absence of only a few days to our berth at Margil.

In October *Seahelle* left the Persian Gulf temporarily to refit in Karachi. I was obliged therefore to leave her and moved into the Senior Officers' Mess at Ashar. The weather was beginning to cool down a trifle and it was pleasant to sleep underneath a blanket though the heat during the day was still severe.

The time had come for a complete reorganization of the naval establishments. The Commodore and his staff moved ashore, the former into a house in Ashar whilst the staff were given a house opposite the office in Margil. Early in the New Year it was intended that the main Naval Base should be transferred from Ashar to Khorramshahr. It had already been recommissioned with the name H.M.S. *Euphrates* instead of *Seahelle II* as it had been called previously.

The next three months were spent in preparing Khorramshahr and a skeleton staff moved down there in November with one medical officer. We intended to use the Persian Naval Hospital as a Sick Quarters and as a preliminary it had to be cleaned thoroughly as it was in a fearful mess when we took it over.

Persia was beginning to assume importance as one of the main routes of supply to Russia. There were three points at which it was practicable to off load ships, namely Bandar Shahpur which was the terminus of the Trans Iranian railway, Abadan which was an island, and Basrah where the wharves were on the wrong side of the river. Subsequently a wharf capable of taking six ships at the same time was constructed above Khorramshahr by an American firm and a branch line was constructed from there to link up with the main line at Ahwaz. At Abadan a large number of Boston bombers were landed and assembled. They were then flown up to Tehran where they were handed over to the Russians. Locomotives and rolling stock were also off loaded at Abadan.

The importance of keeping the Shatt al Arab open to shipping needs no stressing, and we gradually built up a mine watching organization extending from Basrah to the mouth of the river at Fao.

A number of barges which looked rather like house boats were constructed and moored at intervals down the river and a fleet of bellums was also requisitioned. The bellum is a native craft resembling a large and carelessly constructed canoe. Each barge had a number of bellums based on it and their purpose was to ply between the barges and in the event of a mine being dropped to proceed to the splash and bury it.

Early in September the fleet was augmented by two trawlers which had found their way round Africa somehow. Their Captains were both North Sea fishermen who as far as I know had never been East before in their lives. One

of the trawlers had run aground in Karachi when in the words of her Commanding Officer he saw a blaze of lights and people walking up and down all around An ordinary seaman chose this opportunity to desert but he was eventually apprehended and sent up to Basrah arriving there only a few days later than his ship In his defence he stated that he Didn't like serving in a ship where they navigated by guesswork—and they mostly guessed wrong! This however is anticipating for as soon as the ship arrived I was asked to examine the Captain I found him in his bunk The state of the cabin was chaotic and a deck watch lay on the deck having obviously been scorned as an aid to navigation The Captain was very wheezy and I judged he had hyper tension His manner too was odd and when I enquired if perhaps he might have had a little drink in the last few weeks he assured me almost with tears in his eyes that he was a life long teetotaller He was at a loss to account for the half empty bottle of whisky at the foot of his bunk which he had not seen before and in fact he was so overwhelmed by this mystery that he decided then and there to break the habit of a life time and suggested that we might have a quick one together for old times sake Reluctantly I was obliged to decline his kind offer as I had no wish to start him on the road to Hell and packed him off to hospital instead

In due course he returned to the ship but I was soon asked to see him again as he had a nasty jagged laceration on his leg which had been caused by his dropping a broken glass on it I took him back to hospital and this time we invalided him home He was 59 years of age and it was asking a lot to require him to stand up to the horrors of a Persian Gulf summer for the first time in his life

Both these trawlers were coal burners and had apparently been selected for the job with a view to causing as many cases of heat stroke amongst the stokers as possible

Soon after this two more China gunboats the *Scamew* and the *Scarab*, arrived

As the weather began to get colder with the approach of winter flights of duck migrating southwards appeared on the river We tried shooting them from bullums but this was not very successful later we shot them from the mud flats and had good sport They came in great variety and made a welcome addition to the pot We also shot black partridge which makes excellent eating

In February 1942 the main Naval Base was finally moved to Khorramshahr but SNOPG remained in his Ashar house whilst his staff stayed at Margil A few officers and men also remained as a maintenance staff at Ashar and *Seabelle* stayed at her berth at Margil for SNOPG's use in case he ever had occasion to visit the Gulf

The old building which had served the purpose as a naval barracks was taken over by the Y M C A and the former naval offices served as a barracks for the few left at Ashar

We installed teleprinter communication between Ashar and Khorramshahr and ran our Eurekas as routine boats between the two places usually two trips

a day in each direction They soon began to give trouble as they had been driven hard during their spell of active service The R N Patrol Service motor mechanics worked miracles to keep them going but when as eventually happened to them all the cylinder heads cracked they were defeated

For a time I remained at Ashar but it was eventually decided that I should go to Khorramshahr to be in charge of the Sick Quarters there In many ways this was a better arrangement but it meant leaving SNOPG and his staff without a medical officer However it seemed that wherever I happened to be I was inevitably required at the other place for if I was in Ashar there would be a tickish case in Khorramshahr whilst when I was at Khorramshahr SNOPG would be sure to require me urgently at Margil

The R N Sick Quarters as we christened the old Persian Naval Hospital were rather primitive but we at least had a laboratory and a microscope We still continued to use the Military Hospital at Makina for surgical cases and received every help and consideration from the R A M C there I made a point of visiting Ashar at least once a week whilst I was at Khorramshahr in order to see any of our patients who were in hospital and I would usually spend the night so as to have adequate time to see everything and discuss any outstanding problems with SNOPG

In time more medical officers arrived and I was able to post one Surgeon Lieutenant to Ashar one to help me at Khorramshahr and later we had one at Fao as well To relieve the monotony I used to change them round at intervals of about a month and the R A M C used to do a spell at Fao which helped us out considerably *Seabelle* by now had her own Medical Officer

Our sick berth staff was also increased and before long we had two sisters who were sent up from Colombo

There was a period of intense cold soon after we moved to Khorramshahr so much so that even one of our Skippor Lieutenants complained of it He had spent the greater part of his life fishing in the Arctic Circle and people were astonished that he should feel it so keenly Surely they said you are used to the cold ? "I know" he replied "but this is a different kind of cold" — and it was too a raw damp cold that got right into men s bones

In contrast the summer of 1942 was exceptionally hot and I began to be very concerned about the health of the Ship s Company now numbering about a thousand The constant heat the sandflies and mosquitoes and moreover the depressing effect of lack of incentive—we all felt we were in a backwater and doing little or nothing to further the prosecution of the war—were beginning to affect morale We were informed that the R A F had established a Rest Camp in the grounds of the Summer Legation in Teheran and we decided to find out if they would be willing to accommodate small batches of naval ratings Accordingly the First Lieutenant and I determined to go up there to make enquiries In July therefore the two of us set forth We motored across the desert to Ahwaz where we caught the evening train We were provided with a sleeper which was quite comfortable but I lay awake most of the night watching the scenery by the light of a full moon The line runs through the Khuzistan and Loristan mountains and the moonlight gave the scenery a

queer nightmarish quality which is not easy to describe and it was hard to tear oneself away from the window of the compartment

After climbing the Luristan mountains the railway comes out on to the Central Plain of Persia this is essentially a farming country and there were numerous small home-steads looking like small castles though their walls were only of mud They had obviously been built with an eye to defence It was a wild country and no doubt this precaution was most necessary There was a marked change as the train went on steadily northward and we saw a good many military camps where soldiers were training

This railway is a superb engineering feat The climb through the mountains necessitated the boring of many spiral tunnels and the line ascends in great zig zags with in the early stages of the ascent the Karun river far below on its turbulent course There are bridges and viaducts over tremendous chasms The scenery is wild in the extreme and the sight of these superb feats of engineering in the midst of the stark mountains is so sharp a contrast as to be quite startling

We reached Teheran at 2100 next day and reported to the R T O who directed us to an hotel in the city I recollect that all the hot water pipes in the building seemed to run in close proximity to my bedroom and I was forced to push my bed out on to the verandah because of the heat At a very early hour next morning I was attacked by swarms of flies so I turned out as there was no possibility of any more sleep under such conditions

After breakfast we called on the R A F and were shown round the rest camp which was in delightful surroundings with a swimming pool close by They readily agreed to allow us to send up batches of naval ratings ten at a time for the rest of the summer We waited Khorramshahr and the first batch were actually on their way before we got back there

Business over we were free to see the sights of the town Teheran is a modern city of new and imposing buildings but at that time the sanitation was primitive in the extreme for all the sewage was carried in open gutters at the side of the broad streets reminding one somewhat of sewers of London in the middle ages and its kennels The gutters were flushed out at 1800 every evening and as far as we could ascertain after this had been done next day's supply of drinking water was sent down the same channels and collected in suitable receptacles by the inhabitants It was to this that I attributed the strong smell of drains which I turned on the bath in my hotel !!

We visited the Club and called on the Secretary who told us to consider ourselves honorary members for the duration of our stay in Teheran It was set in delightful grounds and meals were at that time served out of doors on the lawns Next we went to the Hotel Darband ten miles outside the city amongst the mountains and were served with potent and very expensive cocktails

We dined that evening at the Club The meal was out of doors and each table was lighted by candles and how pleasant it was to have a meal in such a setting and not be bothered by the fidgets and in those far off days of 1942

We returned to Khorramshahr with some reluctance after three days

It was extraordinary how [illegible] health benefited [illegible] But in going [illegible] the Job by [illegible] had more than fifty at one and the same time—and they all [illegible] by magic during our short stay at Teheran

We left the tram at Ahwaz and hired a car to drive the seventy miles back to Khorramshahr There is no road one simply drives across the open desert and on this occasion the cam shaft broke when we were precisely half way across This was about midday and the heat was terrific We had no water and the outlook was rather discouraging but fortunately two army trucks came up and gave us a lift

The ultimate results of our visit were highly gratifying for both officers and men took advantage of the change offered by the rest camp and all came back looking far fitter than when they departed One party counted themselves singularly fortunate as they saw Mr Churchill I am convinced that this rest camp was instrumental in preventing a great deal of mental and physical ill health We were deeply indebted to the R A F for their co-operation

In September I was ordered down the Gulf to investigate conditions in a cruiser of the Hormuz Patrol as we had received information that about twenty-five of her engine room personnel had been invalided in one fell swoop I was given passage in a Dutch gunboat the *Soemba* as far as Bahrain where I transhipped to a B I steamer which took me to Kor Kuwai where I was to await the arrival of the cruiser in question

Kor Kuwai is at the southern extremity of the Persian Gulf It is not much more than a barren piece of rock but there is a good harbour A few miles away is a fishing village but there is no other human habitation however in spite of this the fly population is phenomenal Not far away is the Elphinstone Inlet which has the reputation of being the hottest place in the World and I can well believe this to be the truth In those days we had a small party comprising three officers and about a dozen W/T ratings who were living at Kor Kuwai under somewhat primitive conditions but they were all remarkably cheerful I had several days to wait and passed one of them by crossing over to Qoions Island in one of the ships of the patrol

Life at Kor Kuwai was not without its lighter moments On one occasion a flotilla of trawlers bound for Bahrain put in and demanded provisions in accordance with instructions they had received at Karachi They asked for several stones of potatoes some greens and Heaven knows what else and were highly indignant that we could not meet their requirements At that time the diet at Kor Kuwai consisted of biscuits for breakfast biscuits for lunch more biscuits for tea biscuits again for dinner and an occasional round of corned beef thrown in as a treat We suspected that whoever informed these vessels that Kor Kuwai was a fully fledged Naval Base had a warped sense of humour

I busied myself treating the various desert sores with which everybody was covered but I had few medicaments with me and in any case the only satisfactory treatment was change to a cooler climate

After several days spent in this way the cruiser arrived and anchored

A hunt was [illegible] and as this was my old ship which I had left in Bombay I wished I had [illegible] on board The effect of the climate was beginning to tell and there is no doubt that in some ways the ship was getting her tail down This is not surprising when it is remembered that light cruisers of this class were built during the 1914—1918 War for service in the North Sea and were designed to be at sea for not more than a few days at a stretch They were quite unsuitable for hot climates and here was this poor old ship doing as much as a fortnight at sea at a time in one of the worst climates in the world It is not to be wondered at that the flesh was beginning to wilt

Next day we crossed over to Bandar Abbas and some of us went ashore and called on the Mayor who entertained us with what I thought were highly illubious drinks but we were none the worse for them We had a walk along the beach saw some tired-looking camels and returned to the ship After that we cruised past the Elphinstone Inlet and then sailed for Kuwait I was kept busy investigating conditions in the engine and boiler rooms Temperatures were quite fantastic Stokers had to come up and take breathers in the fan shafts every few minutes and it is surprising that anybody was left to carry on at all

I left my old ship at Kuwait and returned to Khorramshahr where I prepared my report

Soon after this we had a visit from the Fleet Medical Officer who flew up from Mombasa I showed him as much of my practice as was possible in the time at his disposal and introduced him to the military civilian and oil company medical officers with whom my work brought me into close contact He departed by air again after a few very strenuous days

With the cooler weather the sickness rate dropped rapidly and everybody heaved a sigh of relief and got out their guns again I usually managed to get one day's shooting a week and there were good bags of black partridge and duck It was difficult to procure cartridges but we managed somehow paying fabulous sums for them at times but we felt it was well worth it

The civilian surgeon in Basrah was thrown from his horse early in the new year and sustained a Colles fracture This put him in a quandary as there was no other civilian capable of undertaking the general surgery at the local hospital and he approached the military for assistance Unfortunately it so happened that at that time the Army themselves were short of medical officers and they could not spare a surgeon to help him out of his difficulty

As a last resort he asked if I could do anything about it and after a long discussion with adequate mental stimulant at the British Overseas Club between him a young Australian Surgeon Lieutenant who happened to be doing his time in Ashar and myself it was agreed that I should ask SNOPG's approval for this officer to undertake this commitment He was a most capable surgeon and I had every confidence that he would give a good account of himself

SNOPG readily agreed to this proposal subject of course to the proviso that it should not interfere in any way with his official duties and so Honorary

Surgeon to the Maude Hospital he [illegible] and my confidence in him was not misplaced

The effect of this was to put our shares very high indeed among the civilian population and I think they appreciated that the navy was still true to its traditional role of always being able and willing to help somebody out of a jam

The 'Maude' is a small hospital on the outskirts of Basrah It was built after the 1914–1918 War as a memorial to the late General Sir Stanley Maude who died of cholera in Baghdad in 1917 The matron was an English lady who had previously been at a hospital at Cyprus and was well acquainted with some very senior officers whom she had known in their younger days

Soon after this I heard that I was to be relieved I had been abroad four years two at sea and two up the Gulf since the outbreak of war and had had no leave so I was by no means sorry to hear that someone else was coming to shoulder the burden

It was then that we got an epidemic of typhus It seemed to track down from the north with emigrants from Russia and there were two definite routes of spread one coming down through Iraq and Persia and the other branching off and running into Palestine We procured some of the new typhus vaccine which was then in the experimental stage and gave it a trial About the same time we got two cases of smallpox We immediately started mass vaccination doing all our own people and as many of the Arabs who worked for us and their families as possible The latter seemed to enjoy it and one small boy actually turned up for a second vaccination within ten minutes of his first on the principle I suppose of getting something for nothing and thus anticipating the National Health Service

We got a third case and a bad one at that I began to get scared and had visions of staying there indefinitely if the epidemic assumed large proportions However there were no more and at last my relief turned up The next difficulty was to get a passage and as there was considerable delay I was invited to stay with the British Consul The manager of the Imperial Bank of Iran with whom I had frequently gone on shooting expeditions was also a guest in the house as he too was on the move and as the Consul himself was being transferred elsewhere there was a distinct end of term atmosphere about

At last I got a passage in a small steamer bound for Bombay In the end she took me all the way home—a trip which lasted nearly three months and was very enjoyable

It is interesting to compare and contrast the events I have described with the Mesopotamian Campaign of the 1914–1918 War

At the outbreak of the war with Turkey in 1914 H M S *Espiegle* Flagship of Rear Admiral Wilfred Nunn the then Senior Naval Officer Persian Gulf was at Mohammerah as Khorramshahr was called in those days On the 7th October a letter had been received from the Turkish Consul requesting him to withdraw from the river

On 6th November 1914 there was a brisk engagement between the shore

batteries at [illegible] and H M S *Odin* as she was forcing the entrance to the river and after the shore batteries had been silenced landing parties comprising some 600 Infantry Marines from H M S *Ocean* and Bluejackets were put ashore there

The same day *Espiegle* moved down from Mohammerah to Abadan as an enemy attack on the oil refinery was expected An engagement ensued between the Turks who were encamped on the opposite side of the river and the ship Heavy casualties were inflicted on the enemy at the cost of two British sailors wounded Next day H M S *Odin* and the transports of the Expeditionary Force arrived and disembarkation commenced in a section of the river a short distance above Abadan It was completed by the 10th November

On the 17th November a land battle was fought at Sahil a few miles further north which cost the British 54 killed and 440 wounded

In order to obstruct the river the Turks sank two vessels in the channel between Shamshamiya and Dabba Islands The masts of one of these vessels, the *Ekbalina* can be seen there to this day

On the 21st November ships of the Royal Navy moved into Ashar and took possession of the town Two days later Lieutenant General Sir A A Barrett made a ceremonial entry

The similarity between that campaign and the events of 1942 comes from that time onwards as the Mesopotamian Campaign went on for years and the ships followed up to Kut and Baghdad It is interesting that in 1914 a stern wheeler the *Shushan* possibly a sister ship to the *Isan* of 1942 was requisitioned and also had the honour of flying the White Ensign for a time

Several river gunboats built in sections shipped out from England and assembled at Abadan started their career on the Shatt al Arab moving out to the Far East when the war was over After serving for many years on China rivers at least two of them—the *Cockchafer* and *Scarab*—returned to the place of their birth to finish their active career where they had begun a quarter of a century before

My narrative intended to show the part played by the Royal Navy in a campaign far from the High Seas seems to have deteriorated into a series of personal reminiscences but it will have served its purpose if it throws a little light on an almost unheard of campaign which was not without importance in the scheme of things

I must acknowledge my indebtedness to "Tigris Gunboats" by Vice Admiral Wilfred Nunn from which I have obtained most of the information for the latter part of this article

REFERENCE

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DERMATOLOGICAL EXPERIENCES IN A TRAINING SHIP

BY

Surgeon Commander P K FRASER R N

In a young and healthy age group such as a naval population dermatological disorders form a large percentage of all sickness seen and demand a degree of care and supervision out of proportion to the disablement present Relatively cost per patient is high with much long term treatment and considerable expenditure on dressings and bed linen

The cases under review were seen over a twelve month period and were drawn from a stable ship s company with in addition a considerable turnover of young seamen trainees It is not proposed to tabulate the incidence of the various diseases as the records in the first half of the year are incomplete owing to drafting However figures for the latter half are available and confirm previous impressions

Classification

It would be attractive to classify cases as of exogenous or endogenous origin The former would include the mycoses and bacterial infections such as impetigo while the latter would embrace psoriasis and such like Unfortunately for methodology difficulty arises at once Seborrheic eczema assumes a predisposition in the skin with a superadded infection from the scalp Pityriasis rosea always seems to occur in small outbreaks while lichen planus shows the scratch reaction which presupposes a susceptibility in the skin virus or otherwise The psychic factor looms large in dermatology and this is not surprising when one considers the ectodermal origin of the nervous system This then introduces a subdivision in the endogenous group and in many cases all three factors will be operative A mycotic infection on a dry foot pursues a very different course from an infection on a foot already hyperkeratotic In a nervous subject scratching will soon convert residual lichenification into a chronic lesion of the neuro dermatitic type which will persist long after the initial pathogen has been dealt with Thus any rigid classification would tend to break down and it is proposed to adhere to the accepted general groupings appending the unusual conditions as a rider to the main theme

The Mycoses

This was by far the largest and most troublesome group Trainees were chiefly affected shortly after joining and the condition was not seen in anything like the same degree in the ship s company Tinea cruris was the usual manifestation followed in frequency by an axillary or body infection Two scalp cases were seen and one in which the pubic hair was almost certainly infected although this was never proved

[illegible] difficult to account for as each man had his own kit and body cleanliness was drilled into them from the start Bath rooms and washplaces were kept clean and benches were scrubbed The introduction of leatherette bench cushions which cannot be scrubbed may be the root of the trouble as it has been shown that spores from crural infections can pass through loosely woven textiles

In early cases without weeping the fungus could easily be recognized microscopically in a scraping from the spreading edge Some scales were sterilized and incubated on Sabouraud s medium at room temperature A large number of overgrowths resulted but in ten *Epidermophyton floccosum* was isolated and this is the invariable finding in such cases This pathogen can exist outside the body and epidemics in hospital wards may persist for months despite every effort at sterilization The two scalp cases showed tinea mentagrophytes (*T gypseum*) and this was recovered from two cases of tinea corporis This pathogen produces a fine pustular element in the skin and in the scalp there was a deep kerion condition with constitutional upset One of these showed a pompholoid vesicle eruption on the hands

Standard treatment in crural infections consisted in the application of Castellani s paint twice daily for about a week followed by Whitfield s ointment for a similar period Most cases resolved in two to three weeks Underclothes were sterilized as a routine Castellani s paint has the advantage of being fungicidal and keratolytic although the dye tends to stain underwear This can be mitigated by allowing the application to dry thoroughly before dressing Fresh solutions appear to have more penetrating power than old preparations In a few instances a weak tar salicylic acid ointment was finally applied despite the old teaching that tar should never be applied to a hairy part and two cases showed seborrhoeic stimulation with what appeared to be an adenomatous condition This did not progress to the degree of stimulation as shown on the face by acne sebaceum although it was a useful reminder of the powers of tar Around the anus tar preparations can lead to chrome and troublesome comedo formation

The scalp infections did not require vigorous local medication as the suppurative mechanism was curative in itself by shedding diseased hairs In one case this was assisted by iodine applications Penicillin was used for the systemic upset and to keep the local reaction within reasonable bounds and thereafter an ammoniated mercury ointment was used The fungus responsible does not fluoresce in Wood s light and is not the type usually found in children

Body lesions if localized were treated with Castellani s paint while widespread cases were given permanganate baths twice daily An occasional bicarbonate bath was useful in the presence of crusting One heavy infection on a seborrhoeic basis was seen and this will probably progress to an exfoliative dermatitis before resolution The final result will undoubtedly be a sensitized skin

Remarkably few examples of tinea pedis presented and the crural regime was sufficient in most There is a tendency to label any skin disease on the foot as mycotic without justification and a closely similar analogue can be

[illegible] by wearing gloves on both [illegible] A [illegible] [illegible] [illegible] was [illegible] and which usually responded [illegible] [illegible] jelly twice daily for up to three weeks In very wet cases with [illegible] [illegible] formalin baths 1 in 5 were used twice a day for up to two weeks Thereafter a little Whitfield's ointment to the feet at night kept the skin healthy Adjuvant measures consisted in foot washing in cold water twice daily dry socks and a change to a slightly larger pair giving more foot room

Six cases of tinea versicolor were seen Four had been diagnosed elsewhere as pigmentary abnormalities but grattage of the edge of the lesion showed fine scaling from which abundant fungus could be recovered microscopically All showed the typical light coffee coloured patches over the chest and the average duration was over one year

Treatment consisted of Whitfield's ointment twice daily for up to one month Clothes were sterilized twice during this period and in summer the area was turned by direct sunlight

The newer fatty acid fungicides and the phenyl mercuric group were not used in any of the mycoses From a survey of the literature it appears that they will supplant the older preparations in time

Impetigo

This was the second commonest condition with which we had to deal Isolated lesions were treated with Castellani's paint without an unduly grotesque effect while more widespread eruptions were placed on carbol Albour applied with cotton wool every two hours or oftener When bacteriotherapy was established weak ammoniated mercury ointment was applied Shaving is essential throughout treatment With a keen razor and brushless cream this can be accomplished without much discomfort The brush should be sterilized before returning to the old lather method

Ointments incorporating the sulpha drugs have little place in treatment With raw surfaces they readily act as sensitizers and the residual dermatitis may be more widespread than the original lesion Penicillin ointments are useful but they contravene the old law against greasy preparations on weeping areas An aqueous penicillin spray was used from time to time The older treatments however seem to be more comfortable and patients prefer them

Seborrhoea

This is a well recognized group in its own right and came third on our list Manifestations ranged from a mere greasiness of the skin to widespread seborrhoeic eczema The more blatant manifestations are regarded by some as a combination of a predisposing factor in the skin and an infective agent from the scalp—the pityrosporon of Malassez Whatever one's view it is essential to treat the scalp condition in conjunction with the body lesions

A greasy face with scalp dandruff is well worth treating for cosmetic reasons and to obviate future trouble The scalp should be washed at least twice a week and 10 gr of each salicylic acid and precipitated sulphur in 1 oz of soft paraffin supplied as a permanent hair dressing Frequent face washing with a good lather soap was enjoined and the scalp ointment in double strength

[illegible] it might [illegible] the skin Sulphur ointment [illegible] activity and is [illegible] in such conditions With much dandruff the hair should be parted serially from side to side and the ointment rubbed into the partings This is imperative with thick hair otherwise the medicament will not reach the scalp An elegant dressing for routine use can be made up with salicylic acid and castor oil in a perfumed spirit base This was rather expensive for routine issue to our cases and would have added a breakable bottle to their kits All cases on sulphur should be checked at least once a fortnight to pick up sensitizations

In frank seborrhœic eczema the typical red glazed lesions were seen in the flexures with characteristic golden yellow exudate and small discrete peripheral lesions The scalp and face were usually affected and in some a condition approaching syccosis nuchæ was seen on the back of the neck If possible the hair was preserved or at the most trimmed so as not to add to the sum total of general misery

Luminal ½ gr thrice daily was given to all patients and in some cases increased to allay itching and to aid sleep In the initial stages mild soothing lotions were applied such as calamine with 1 dr of dilute lead subacetate to the ounce Later when the condition had progressed ichthyol 20 gr to the ounce was added This preparation contains organically bound sulphur and is better tolerated than the powdered form. Lotions should be applied without a covering or at the most a thin layer of gauze Bandages may look neat but they increase local heat and moisture

In the acute phase benadryl is worth a trial This preparation seems to be more effective against itching than antistin Commencing with 50 mg three daily the dose can be doubled towards the end of the week There is no point in continuing further and the results are not usually dramatic

The final disposal of these cases is a problem Undoubtedly most of them are permanently sensitized and will react badly to tropical conditions of heat and humidity In cases that are worth retaining in the Service constant attention should be paid to the scalp and any small skin lesion treated like a major outbreak

Acne

This was common and some cases presented the lesion in extensive form between the shoulder blades This type clears up by about 25 years of age but leaves unsightly scarring 30 gr of each salicylic acid and sulphur to the ounce of calamine lotion was applied to the lesions twice daily allowed to dry and the powder deposit gently rubbed into the skin with a gauze pledget In two to three weeks the skin began to feel tight and a weaker preparation in an ointment base was substituted for a few days before returning to the original lotion Comedos were expressed daily with a blunt glass tube or two wooden tongue depressors The unsightly swellings of acne sebaceum were incised with a fine tenotome and the contents expressed

The combination of facial acne and a greasy skin may have a basis in excessive androgen secretion It is seen in masculinizing tumours in the female and in androgen treatment of menorrhagia Some authorities have advocated

oestrogens in treatment and an investigation [illegible] in a small hospital group. With oestrogens there the results were [illegible] inferior to local treatment while a combination of both gave slightly better results than formerly. Breast swelling and tenderness were troublesome in a few cases and 0·3 mg. Dimoestrol twice daily for two weeks could not be exceeded without discomfort in some.

Ultra violet light is beneficial and during the summer crises were held on the upper deck with the torso exposed to acquire a good tan. In winter artificial U.V.R. was not considered worth while. Chrysolate and corna products have always been burned by the older writers. Whether this has any etiological significance or whether indication is merely typical of this age group is difficult to say. In the present state of rationing no mention of the prevention of his affection.

Otitis Externa

Cases with an associated otitis media and outside the scope of this paper and the secondary skin condition usually responded to simple measures when the underlying cause was removed. An unpetrolized condition is part of a lesion on the pinna was occasionally seen and responded well to the treatment detailed under the heading. Another condition involving the mastoid bone was met with as part of a seborrhoea affecting the ear from the scalp. With treatment the condition often became inflammatory and reached a chronic stage with general thickening and a partially stenosed meatus. X ray therapy is then indicated and this was arranged elsewhere.

Otitis externa presented during the summer months and a small [illegible] was set up to facilitate the flow of cases. On reporting the ear was syringed to remove debris and to obtain a view of the drum. Thereafter gentle swabbing was carried out daily or oftener as necessary. It is worth remembering that the mental culture is reduced with eczema and will not admit the usual thickness of cotton swab without trauma. Screwing the swab down the meatus is the best method of perpetuating weeping and will further reduce the calibre with oedema. Hosts of local applications have been extolled but gentleness and patience are still the best remedies.

Boracic powder tapped down to the drum after cleansing helps to dry the skin and 1 per cent. gentian violet in spirit sometimes cures the obstinate salmon pink with slight troubled dampness.

Infestations

Scabies was surprisingly uncommon and an application of benzyl benzoate emulsion after a bath was sufficient to effect a cure. Clothes were disinfected despite the modern view that this is unnecessary. Looking back for some years it is felt that relapses are rare and this is noticed. Personal impressions without statistical proof are notoriously fallacious but it seems that many of the children with experience of this condition are of the same mind.

There is still reluctance in certain quarters to diagnose scabies in the early stages. With a papular rash [illegible] and especially if pimples are found on the penile shaft or [illegible] in diagnosing the disease quite easily. The one application method has established the most and demonstrates medicinal measures formerly seen.

Pediculi were very uncommon In all cases the part was shaved and ammoniated mercury ointment applied

Eczema of unknown origin

Such cases were comparatively infrequent Several examples were seen where a definite irritant—caustic solution to bleach woodwork—was implicated In a few the outbreak could be related to an emotional upset Two cases in this group gave a history of infantile eczema

Luminal was used routinely and lead and calamine lotion applied until the acute phase had subsided Ointments incorporating salicylic acid tar and zinc oxide were then used In most cases this was sufficient to clear the condition but some required X rays for obstinate residual patches Providing induration was minimal crude coal tar was sometimes efficacious

Second and subsequent attacks were looked on with suspicion These subjects are bad Service risks

Benadryl was given to every case not so much from a therapeutic viewpoint as from pressure of local public opinion The final result was little influenced With an allergic history it is generally a waste of time to search for a single allergen as most cases are group reactors when seen Anti flash gloves cut off at the wrist and washed were of great value in hand lesions

Washing as a rule was prohibited and the parts were cleansed with oil daily Crusted cases however frequently derived comfort from a bath Adherent crusts responded well to starch poultices Incidentally the art of making such a poultice seems to be dying As in cookery it is necessary to follow the instructions especially as regards accurate measurements of ingredients A surprisingly large number of people are incapable of doing so

Urticaria

Several examples were seen during the lobster and strawberry season Benadryl and a soothing lotion such as calamine with 1 100 at carbolic were generally effective

Herpes Zoster

A few cases were met with in young men and no contact history with chicken pox could be obtained Some irritation was present at the onset but no residual neuralgic pain as is seen in older people

Little treatment was required besides a drying lotion such as calamine and no restrictions were placed on their movements about the ship

Psoriasis

This was seen several times as a dry nummular or punctate form with lesions on the knees and elbows In one case the nails were affected The condition caused little disability but patients were sensitive about the cosmetic appearance and its effect on others Chrysarobin and its synthetic analogues were not used and salicylic and tar ointments reduced the patches to presentable levels

The behaviour of this disease in the tropics depends in considerable degree on the patient's emotional make up Most cases do well and some regress completely during their period of residence The reactive type does badly as the skin is already hypersensitive to excessive climatic changes

Verruca

Isolated warts were met with on the hands and three cases showed multiple small outlying lesions An ethyl chloride freeze followed by removal level with the skin and silver nitrate cautery of the base were usually effective As sometimes happens in multiple cases the smaller ones vanished after treatment of the major wart

Plantar warts were not seen although callosities on the feet were common enough from orthopedic defects

Miscellaneous

Pityriasis rosea presented as small outbreaks of two to three cases with no apparent link up among the subjects Typical lesions were found on the back along the axis of the ribs and scaling from the centre was visible without magnification A herald patch was found in only one case and another was mildly pyrexial at onset

A lotion such as tar and calamine helps to disguise the rather alarming appearance although treatment is hardly required Natural regression took place in from two to four weeks As in all symmetrical skin lesions a Wassermann test was carried out routinely

Lichen planus was seen once The lilac colour was most pronounced and small discrete papules were found along scratch marks A case was seen elsewhere during the period in a woman aged 60 which had resisted treatment for over a year The underlying cause became apparent when she developed mediastinal compression from Hodgkin's disease

Sycosis barbae was seen twice One case gave a history of contact with dogs but hairs from infected follicles were negative for fungi and the condition was hardly nodular enough to diagnose them without proof Both did well on systemic penicillin and gentian violet in spirit locally 3 per cent vioform ointment was used elsewhere in similar cases with good results The Squibb preparation Quinolor has a good reputation in this disease

General Considerations

The attitude sometimes adopted towards a condition which rarely proves lethal and which usually progresses to resolution in a degree of stability which permits of a normal life is not shared by the patient The majority of medical and surgical ills can be faced with a certain fortitude and melancholy dignity An itching weeping skin robs the patient of all fortitude and so the victims assert is completely lacking in dignity

Cases with extensive weeping or itching should be treated in hospital Apart from the pure mechanics of treatment it removes them to an atmosphere of quiet calm away from ship life which may have acted as the precipitating factor in a nervous individual This is borne out time and time again when a man returns from hospital with a clear skin only to relapse in a few days As a rule there is no history of contact with irritants during the short period on board and questioning will usually reveal an exaggerated response to continued problems These people are on the whole an intelligent mentally active group

who have somehow learned to feel with their skins. Final invaliding is the only solution from the Service point of view.

As regards the general handling of dermatological diseases it is felt that they could be most efficiently treated at special centres. It is quite feasible that the day to day outpatient routine could be carried out here without much loss of time. The constant alterations in treatment required during the conduct of a case are difficult to forecast from one consultation and are essential if the treatment is to keep pace with the changing status of the skin. At these centres X ray treatment would be available. Without it dermatology cannot be practised. An elaborate apparatus is not required and filtration is certainly not needed in the majority of cases. Most chronic lichenifications will respond to nothing else and it may be the only thing which will suppress weeping. Calibration is simple with the modern roentgen meters and providing the inside skin distance is kept constant only an occasional check on the tube is required.

I am indebted to the Department of Mycology, London School of Tropical Medicine and Hygiene, for final identification of the fungi.

COMPARISONS OF THE NAVAL, MILITARY, R.A.F. AND CIVIL MEDICAL SERVICES WITH PRIVATE PRACTICE

PART V

BY

Surgeon Captain R. C. MUNDAY, *G.B.*, M.R.C.S., L.R.C.P., R.N. (Rtd.)

HERVES

Our *Hervies* was some weeks in Dockyard hands before she could get to sea. There was little or no sickness on board and I had for the first time an assistant, a very junior surgeon who spent all his time off duty, and all his money, in the various methods of doing so in the metropolis. He was so hard up near the middle of the month that he ingenuously suggested to me that he might borrow a fiver from the sick bay comforts fund. He was most surprised when I explained how awkward it would be if we were found out, and still more surprised and annoyed when I objected to his attendance at the sick bay in pumps, a lounger and half an hour late. He had a lot to learn. I wish I knew what became of this cheery, care free young man.

Chatham Hospital was a much smaller institution than the present very well planned and built hospital. I suppose it is still known that Sir James Porter, who was entrusted with the specifications, obtained his ideas from a study of all that was best in the best hospitals in the country.

Last I to spend my off duty at the old hospital, now the Mumme Infirmary, watching and assisting the Staff Surgeon operating. He was one of the best

operators of his time in the Navy. Unfortunately for the Service he left after twenty years' service and took his wife and large family to a farm in Canada where he made so much by farming and surgery that he never spent a penny of his pension. He his wife and his children were capable and adventurous. He almost certainly would have attained the highest rank in the Service but they preferred to risk failure in Canada to the certainty of the separations involved in the navy.

After a few months in the *Hermes* under one of the best Captains and with very good messmates I was suddenly appointed to the *Retribution* a third class cruiser on the North American and West Indies station. I was to take the place of a Senior Staff Surgeon who had been invalided in the middle of the commission. She was lying alongside the dockyard at Halifax when I reached her by mail steamer from Liverpool via the St. Lawrence estuary.

One of the first things that I had to attend to was a signal from the flagship informing me that I had been selected to play cricket for the Fleet v. the City of Halifax. I was several months out of practice and felt sure that my batting would not be much help to the side and said so but the selectors had received such exaggerated accounts of my cricket at Mount Wise that they insisted on including me. I was as I expected quite right no good. I never could make runs when out of practice at the nets. However I consoled myself with some delightful golf on the little course not far from the dockyard. Two of my messmates were in the 3 and 4 handicap rank and I think I was about 10 so there was no difficulty in getting a match.

This comparatively pleasant life suddenly came to an end when trouble broke out in Nicaragua. Home and Foreign politics demanding the presence of a British cruiser in these waters. The *Retribution* was selected because of the well known tact and diplomacy of our Captain Lyon. We were all of us glad that he had been honoured in this way above his fellow captains but our pleasure was considerably damped by the experience which befell us. We lay for three or four months in an open roadstead rolling almost gunwale under continually day and night.

BLUEFIELDS

The nearest landing place was at Bluefields a small squalid town seven miles up a muddy shallow creek. Here there were a few unhappy white people mostly Americans from the Southern States and one dilapidated beachcomber of an Englishman who had seen better days.

The Captain let me go ashore for exercise in the steam launch which went in for fresh meat and vegetables. The former would be shipped in the shape of a very much alive bullock. As we had no ice and the climate would not allow of delay slaughter took place on board and the carcase was consumed soon after. The meat was terribly tough and there was great scarcity of vegetables and fruit.

I was soon busy in the sick bay with an epidemic of boils due I think to the poverty of fresh food the enervating damp heat the monotonous life and the indifferent ventilation owing to the incessant rolling of the ship. We were indeed thankful to be relieved by a sister ship and to get north to the pleasant amenities of Bermuda where we lay alongside at Hamilton and enjoyed some

excellent bathing, cycling picnics and very good golf with very keen American visitors. So seriously did these sportsmen take the games and their handicaps that they concentrated wholly on their individual scores, regardless of the opponent's position in the match.

BERMUDA.

I have only visited Bermuda but never in the hot season, so I have nothing but pleasant recollections of the climate, the scenery and the people, except for the purely temporary drawback which almost invariably affected newcomers. It was known colloquially as "The Bermuda" an epidemic of enteritis. Cases were very numerous in ships tied up alongside the dockyard mole, but none of a duration long enough for hospital treatment, although temporarily so severe that during the night after coming alongside the sick ill ranks and strings kept meeting one another in their wearisome but urgent pilgrimage from the ship to the latrines scattered along the mole. The journeys were of such an urgent nature that there was no time to dress for the occasion, and the Captain harassed by his symptoms and worn out by hours of intermittable nocturnal hurrying to and fro, at length ordered the wind to be passed that saluting could be temporarily suspended and uniforms represented by a cap only.

While entering the harbour we had the misfortune to touch a rock, which necessitated examination and repair of the ship's bottom by divers who went down day after day for more than a week during the daylight hours. This involved the stopping of my shore going activities for the whole period. Efforts to get relieved by my colleagues in other ships were fruitless. I still think they might have remembered that my ship had just returned from the discomforts of a three months sojourn at Bluefields (Nicaraguan station) and offered to relieve me for a spell of exercise on shore.

We were soon off again, this time back to Halifax, and tied up to the dockyard jetty. Thereby hangs a tale which might have had a serious effect on my career. The Sunday after our arrival I was on duty as Medical Officer of the Guard. One of my messmates awoke from his post luncheon cauchemar to ask me if I had yet called on the Commander-in-Chief. I said "No." He said "I'm going this afternoon. Come with me and hold my hand in case we are asked to come in." I reminded him of my duties that day. He reminded me that the Admiral's house was in the dockyard and that the Medical Officer of the Guard was allowed anywhere in the yard provided he left word where he was to be found. We were most kindly and hospitably received by the Admiral and his wife and family, and after spending a pleasant half hour in so departed, smoking one of the Commander-in-Chief's choice cigars, and feeling that we had done a good afternoon's duty, and enjoyed it. We were tripping down the path to the ship when we were surprised to meet the First Lieutenant sprinting up the hill and looking very agitated. We gathered from his breathless statement that I was "for it." It appeared that a merchant seaman who had partaken of alcoholic refreshment had strolled on board the Flagship, made his way over and through a large number of recumbent and unusually peaceful blackjackets on the forecastle. So somnolent were the Tars of the Navy, that they totally ignored the

merchant [illegible] which [illegible] challenged [illegible] and aft the [illegible] ship to hold [illegible] which [illegible] but fairly stoker and kicked him [illegible] and shortly [illegible] first and same the unfortunate [illegible] that [illegible] over head over heels across the fresh cutting [illegible] for a brief but tragic moment in a rabble. Something had to give and it wasn't the rabble. The hospital pundits soon decided that it was a case for a doctor and as all three of the Flagship sick bay were inshore the line and cry was raised for the Medical Officer of the Guard. Now I had told my sick bay steward exactly where I was going and for how long but I did not put it in writing and he when asked said I had gone to the Flag Captain's house which was well outside the dockyard. That distinguished officer was naturally surprised and not a little angered at being roused on the Sabbath by a telephone request to send a doctor of whom he had never before heard on board the Flagship and he became very wroth indeed when it was explained that the doctor in question was the Medical Officer of the Guard and had announced his intention of leaving his post of duty to attend a summons call on the Flag Captain.

All this was told me as I now hurried on board my ship to get into uniform and thence to the Flagship where I was met by the Commander who spoke to me as one would to a man who had not long to live at any rate as a naval doctor.

I suggested that I would first see and dispose of the cause of all the trouble. It was a Pott's fracture and I soon had a McIntyre's splint on him and was quite pleased with the alignment of the bones when I had finished. I then telephoned to the civil hospital and the ambulance. After this I suggested that it would be only courteous to telephone the Flag Captain and explain what had happened but the Commander who knew his Captain advised me not to make any statement before the inevitable court martial. However I was not alarmed and insisted on speaking. The Flag Captain said in frigid tones "I will see you to morrow morning."

My own Captain came on board early on Monday morning and I saw him at once and told all that had happened. He at once decided to see the Admiral before the Flag Captain did. The Admiral said that he knew me to be keen on my job and he was damned if he were going to let a drunken sailor ruin a promising officer's prospects. While they were talking the Flag Captain came in and urged that for the maintenance of good discipline an example should be made by court martialling a medical officer who was absent from his post while on Guard duty. The Admiral said he knew a good deal more about the affair than the Flag Captain and had decided that the only persons to blame were the drunken seaman and the sick berth steward. He considered that the seamen had been adequately punished by the stoker and the sick berth steward would be dealt with by the Staff Surgeon.

The *Retribution* was at Bermuda when we were quite unexpectedly ordered to Plymouth to pay off. I was of course delighted that the commission abroad was cut short by twelve months and that I should soon rejoin my wife and family and make the acquaintance of a daughter born soon after I left England now the wife of a Captain R.N.

One thing marred my pleasure. I received orders to take five lunatics home

from Bermuda hospital. In a large ship it would not have been difficult to improvise a safe and healthy mental hospital but in this small class of cruiser it meant screening off a suitable space under the forecastle just forward of the sick bay. The Captain as always rendered me publicly notable by giving me all facilities and the patients arrived in England and in better shape mentally and physically than when they had left hospital.

We had to touch at Halifax on the way home and ran into the worst fog I have ever experienced. It is difficult for landsmen to realize that fog is the greatest danger a ship can encounter at sea in peacetime. With my five helpless charges to think of in addition to a large number of other invalided ratings I did not relish the possibility of an iceberg or another ship getting in our way.

Anticipating a long spell of sea time after so many shore billets including two official residences I had settled my wife and growing family in a pleasant little house overlooking a quiet parkland in the suburb of Plymouth with her people and my people on either side only a short distance away. I was therefore not unprepared when after a few weeks engaged in paying off the *Retribution* and a fortnight's leave I was appointed to the *Sutley* the largest type of First class Cruiser with a complement of nearly 1,000 officers and men. She was being put into commission for the China Station at Portsmouth.

The first patient I had was the Engineer Commander. It was clear that he was quite unfit for the China Station and I explained to him that I must send him to hospital for observation and treatment and that I was afraid he would be invalided. He accepted the situation with resignation if not relief. He confided in me that the engines were unreliable and were sure to give a lot of trouble but the Admiralty were determined to get her out on the China Station. His successor was not too pleased at being called upon at very short notice to go to China in charge of barging engines but he had a wonderful Senior Engineer one of the most zealous hard working and conscientious officers I have ever served with. While I was with him in this ship he was rarely out of overalls whenever I saw him he was either just going down to or just coming up from the lower regions. In the end he got those afflicted boilers and engines to do what was required of them. I am glad to say he is now a retired Engineer Admiral who energetic as ever is the mainspring of local learned associations and public life generally in a very pleasant Devonshire country town.

On the voyage out we were very crowded with extra officers and men taking passage for various ships on the station. I had no less than four surgeons to help me and as we had a huge sick bay with ample light and ventilation we decided to keep as many of our patients as possible on board for treatment sending to hospital only those for whom we had not sufficient room or facilities.

We did all the surgical operations required with good results and I feel sure that none of the patients was the worse for our policy which was very popular with the ship's company. I have never met anyone in the Service afloat who went cheerfully to hospital. They all seem to have an unreasonable fear of impending disaster and yet everyone knows how well our naval hospitals have been staffed and the good work they have accomplished for the last four or five decades.

(To be continued)

HEADACHES, DIZZY SPELLS AND BLACKOUTS (AND THE GASTRIC STOMACH)

BY

Surgeon Commander H G SILVESTER *O.B.E*, R N and Surgeon Lieut.-Commander R WALLACE SIMPSON R N

The somatic manifestations of acute emotional disturbance were vividly impressed on most of us by experience during the war but those symptoms of chronic maladjustment are not so familiar

There is little doubt that neurosis is common in the service now and was comparatively rare before the war It is the purpose of this article to draw attention to some of the factors behind this very greatly increased incidence and to discuss some problems of recruiting and training in relation to it To give some idea of just how large this problem is the total number discharged by invaliding from R N Hospital Haslar in the year 1948 was 1 184 Of these 477 were invalided on a psychiatric diagnosis In addition 81 were invalided for peptic ulcers and 219 for dyspepsia and gastro enteritis conditions

That this higher incidence of neurosis is not confined to the fighting services is shown by the increasing number of articles and correspondence in the medical journals and the concern about it in civilian medical circles

Life is now more complex and the individual subjected to many emotional stresses non existent when transport was limited to horses and Shanks's pony There is no reason to suppose that the level of intellectual ability as opposed to education is much higher now than then It therefore follows that a larger proportion of the population is now inadequately equipped to meet the demands of modern life and that this rather than any significant change in the emotional stability of the general population is the explanation

Together with this additional stress of life in general there has been a very marked increase in the tempo and complexity of service life The rating who would have been able to cope quite adequately with scrubbing a deck polishing brasses pushing a rupstan or hauling a sail now wilts when faced with radio radar and the modern electrics and mechanics There is also additional responsibility and fear of the consequences of mistakes For example many ratings engaged in aircraft handling have the appreciation deep in near the surface that by a small lapse in error in judgement they may be responsible for the death of an aircrew

Let us now consider briefly a few factors in the etiology of the neurotic disposition It may be a constitutional deficit of emotional stability with a history of a poor family mental background or may be mental backwardness

in varying degrees An unsettled home life certainly plays its part There is often a history of divorce but the parental anxiety bickering and quarrels which so often occur and may precede the actual separation would seem to be of greater importance in fact any factor contributing to an unsettled home and lack of security such as parental aggressiveness and alcoholism Lack of paternal discipline and example during the vital impressionable years of adolescence undoubtedly contribute to the development of emotional inadequacy The education of the general public in medical matters has increased immensely in recent years The individual is constantly meeting posters and advertisements about proprietary medicines for example the dire consequences of neglecting the vitamin intake and the complications of pyorrhoea constipation and insomnia The daily Press is frequently reporting cases of large sums of money won in compensation and there is an increasing knowledge conscious and subconscious of what symptoms can gain

As a generalization the inadequates react to difficulties in two ways The more aggressive types resort to anti social psychopathic behaviour and project their own inability upon the disadvantages of service life and the more timid react with neurotic and psychosomatic complaints Broadly speaking the cases of neurasis referred for treatment fall into two main classes those who find the prolonged demands of service life too much for them and those who whilst meeting the demands of service life easily are unable to support the additional stress of domestic ties Individuals in the first class are usually within their first two years of service whilst the second class tend to be older ratings leading hands and petty officers with wives and families Overlap occurs when the environment factor is impending or recent marriage

In the navy the conditions of service are undoubtedly much easier than twenty years ago or for that matter during the last war but there is little question that the duties in most branches demand a higher standard of intellectual ability now particularly to qualify for advancement There is more demand for brains as opposed to brawn

It has been shown by routine tests at recruiting depots and new entry establishments that the average level of intelligence of recruits during the war was far higher than that of the average of the general population but that since the war the recruits have become more closely approximated to a true sample of the population

It will therefore be seen that in past years the navy has become accustomed to recruits of high standard and therefore more easily and quickly trained The training programmes standards of proficiency and efficiency were geared to an average level of intelligence no longer found among recruits This may be expected to lead to a higher failure rate during training a lower all round standard of efficiency and a reduced proportion of ratings working well within their intellectual capacity

In naval psychiatric practice a large proportion of the young ratings invalided are on the low side of average intelligence by formal testing based on scales applicable to the general population and commonly give histories of lack of success at school of unstable and unambitious work records and of being backchased during training after joining the service

Other factors obviously influence the individual's willingness to [illegible] with his environment. Material and emotional attributes influence the tendency to minimize or exaggerate the extent of his disability both to himself and to others. The demands and restrictions of service life were [illegible] during wartime but were made easier to bear by the glory apparent in certain individuals or groups of individuals reflected upon all serving units and receiving public acknowledgement in many ways. Repetitive [illegible] preparations for efficiency in action carry a different emotional quality than that of exactly similar duties in peacetime when the object is not so apparent or necessary to the majority. It is the background of compulsion, inability, resentment and minor anxiety with time to brood about it and so magnify it which provides such a fertile soil for neurosis in the service.

It is of interest that very few national service ratings (far less than their proportion in the navy to continuous service ratings) present themselves with neurotic complaints. Whatever influence upon general morale the presence of the conscript may have, he himself rarely tries to escape service in the navy by neurotic behaviour or complaints leading to admission to hospital.

This cannot be entirely explained by the shortness of the period of compulsory service. In the army cases of neurosis occur in approximately equal numbers of continuous service and national service personnel. It may be that as the navy requires so few conscripts and has the first choice it is possible to be more selective.

Before a recruit is finally accepted for any branch he is given a physical examination and is required to answer a simple written questionnaire presented in the form of some fifty items allowing answers of "yes" or "no". By this means a proportion of the more grossly unsuitable applicants can be eliminated or excluded from joining a branch obviously beyond their intellectual capacity. Whilst it is not intended to prevent individuals with high scores from joining branches for which a lower intelligence is sufficient for training purposes, there is a natural tendency on the part of recruiting officers to persuade the individual to sign up for the branch needing the highest score for which he qualifies. This practice is detrimental to the standard of recruits joining certain branches and increases the proportion of cases of "burdening" unsuitability in all branches in the training establishments. Instructors are forced to neglect the more able recruits for the benefit of the less able so that the general standard of proficiency is lowered. Extra classes are an additional strain on both instructors and trainees.

A principle of recruitment at present is that a man shall only serve in the branch for which he enlisted unless he makes a formal voluntary application to change and it is apparent as likely to be of benefit to the Service. Since the majority of recruits know little about the conditions of service before joining, only those least able to adapt themselves are likely to make such application and then only when their training is well advanced or they have been drafted to General Service. This system is open to criticism but the desires of the otherwise unsuitable individual to serve in his chosen branch have to be considered apart from the obvious difference in requirements and opportunity for advancement in various branches.

It [illegible] that [illegible] must be [illegible] by [illegible] compare more favourably with those in civil life or the demand [illegible] service must be made easier and it is obvious that a more efficient service can be obtained only from the former. In either case it should be made clear to the individual throughout his service life that it is to his material disadvantage to leave it.

It must be accepted that a large proportion of recruits who fail to adapt themselves to naval requirements can cope fairly easily with work needing the same intelligence in the familiar surroundings of their upbringing. In the navy they have to compete with an unaccustomed environment as well as new work and the sustained increase in emotional tension gives rise to the psychosomatic reactions. In many cases deterioration in behaviour and efficiency and the somatic symptoms occur together.

As little immediate change in the standard of recruits for naval service can be expected the problem of the disposal of the inadequate personality is likely to remain.

Standards of physical fitness have been laid down as a result of both executive and medical experience and it is generally agreed that borderline cases of physical inadequacy likely to lead to physical illness is a matter for medical opinion and disposal. The problem of the mental inadequate is of recent origin and it remains a matter of some controversy whether it should be settled by executive discharge as unsuitable or on medical grounds by invaliding. Whilst the effect of their retention in the service on general morale and efficiency is undoubtedly a matter for executive decision it seems likely that the question of an individual's constitutional ability to carry out his duties for a prolonged period will in the borderline cases remain a matter for medical decision within the framework of an overall executive authority.

We wish to thank Surgeon Rear Admiral J. G. Hunt, C.B.E., K.H.P., R.N., R.N. Hospital Haslar for allowing access to hospital records and his permission to publish this article.

NOTES ON AN INFLUENZA OUTBREAK IN A CLOSED COMMUNITY

by

Surgeon Commander S. MILES, R.N.

The outbreak occurred in a naval training establishment at East Cornwall where 750 boys of 15 to 17 years of age undergo schooling and engineering instruction. From the 17th January to 23rd February 1950 404 of these boys were placed on the sick list for forty-eight hours or longer and 134 were admitted to an adjacent naval sick quarters and diagnosed influenza (fig. 1).

The onset of the illness was not dramatically acute. The patients felt unwell for a day or so (as if a cold were coming on) and usually reported to the

doctor with mild coryza and sore throat but with [illegible] on of malaise and general weariness Table I gives the condition [illegible] admission to the Sick List of the 494 cases

TABLE I.—CONDITION ON ADMISSION TO SICK LIST

	Total	Percentage
Coryza	353	71½
Sore throat	147	29¾
Cough	42	8½
Earache	12	2½
Normal temp	212	43
Temp raised but under 100°	171	35
Temp 100° F and over	108	22

The most noticeable feature of all the cases was the persistence of the disability for two or three weeks This was particularly remarkable in the cases admitted to hospital where there was a genuine lack of enthusiasm to return to duty when symptoms and temperature had subsided In normal cases of upper respiratory tract infection this type of boy is usually eager to return to his instruction as soon as possible

Cases Admitted to Hospital.—As shown in fig 1 admissions to hospital did not commence until 5th February when the outbreak was at its height [illegible] on the nineteenth day These were cases with severer symptoms whose admission

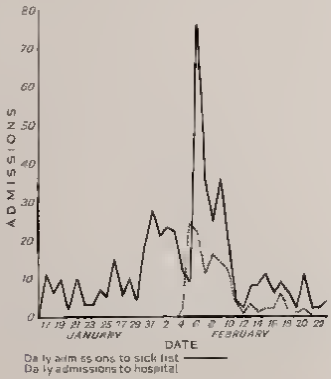


FIG 1

was considered desirable by the establishment medical officer. A summary of the symptomatology of these cases is given in Table II.

TABLE II.—SYMPTOMATOLOGY

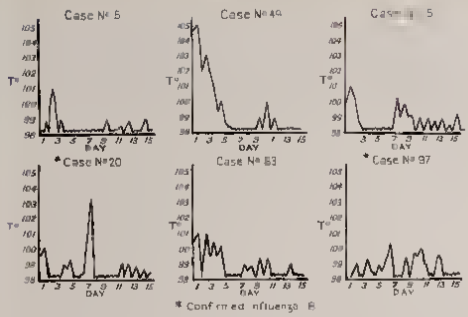


FIG. 2

Complications.—Experience of previous winters had shown that the vast majority of upper respiratory tract infections were uncomplicated and that the complications experienced in the present outbreak were normally encountered as primary conditions.

Table II gives a full picture of the incidence of complications. Of these the meningeal and pulmonary signs when they occurred were present from the onset as were the common complaints of coryza, sore throat, cough and headache. Tonsillitis and otitis media developed in from five to seven days and sinusitis was delayed more than ten days. The latter complications did not account for the second rise in temperature, this phenomenon being equally present in the uncomplicated cases and also those which had pneumonia and meningeal signs at onset. Those with the later complications rather tended to maintain a continued fever.

Of the 7 pneumonias 2 were acutely ill giving cause for anxiety and although in all there was radiological evidence of consolidation in one or more lobes the clinical picture was of a bronchopneumonia.

The 19 cases of otitis media were all catarrhal and not one suppurated. Pain was the main symptom with a reddened drum.

Of the two rare complications the femoral thrombosis occurred on the first day of illness and the 3:2 heart block on the sixth day.

Diagnosis.—It was soon apparent that all these cases differed from the upper respiratory tract infections of which 380 had been treated in the sick quarters during the past two years. The indications which lead to a diagnosis of influenza B infection were as follows:

(1) Marked debility and lassitude preceding, during and following the period of fever.

(ii) The insignificance of early physical signs as compared with the degree of malaise

(iii) The pattern of the temperature chart The intermittent character was not observed in previous upper respiratory tract infection and the present series does indeed show some resemblance to the temperature curves in other established virus infections such as yellow fever the typhus group and especially dengue

(iv) The explosive nature of the outbreak

(v) The high incidence of secondary complications presumably by their nature and immediate response to sulphatriad and penicillin due to staphylococci streptococci or other common organisms of the respiratory passages This indicates that the primary virus infection produces no immunity to these organisms which take advantage of the lowered resistance and flourish

(vi) The illness was not acute enough to be regarded as an influenza A' infection

Laboratory Investigations —Eight samples of blood taken at random were sent to the Public Health Virus Research Laboratory and of these two were confirmed influenza B

Erythrocyte sedimentation rates and white blood cell counts were done on selected cases with the results as shown in Table III

Four of the worst throats had swabs taken and cultured from which non haemolytic streptococci were isolated

TABLE III LABORATORY EXAMINATIONS

Erythrocyte sedimentation rate total 20

Under 10 mm/hr		*Over 10 mm/hr*	
Total	*Average*	*Total*	*Average*
6	6 mm/hr	14	42 mm/hr

White blood cell count total 21

Under 10 000 per c mm		*Over 10 000 per c mm*	
Total	*Average*	*Total*	*Average*
4	8 200 per c mm	17	14 000 per c mm

Treatment —No specific treatment was evolved All cases on admission were treated symptomatically with a basic routine of ammoniated tincture of quinine and aspirin Calomel was given the first night with a saline purge the next morning This regime was on the whole quite satisfactory

For the meningeal pulmonary tonsillar and aural conditions sulphatriad was used starting with four hourly doses of 1½ grammes for forty eight hours Six of the more acute cases were given penicillin at the rate of 50 000 units three hourly Without exception the response in all these cases was satisfactory

On leaving hospital patients were given malt and cod-liver oil and mist ferri phos co for a further two to three weeks

EPIDEMIOLOGY

The object of this paper is primarily to give a clinical survey but the following facts are of interest

(i) With the exception of two of the nursing staff the infection was limited to apprentices of 17 to 17 years although they were in close contact during the day with their officers and instructors

(ii) There was no parallel outbreak in an adjacent Stokers Training Establishment although officers instructors and wives moved freely between the two In the Stokers Establishment the seasonal incidence of upper respiratory tract infections remained minimal

SUMMARY

The clinical report on 494 cases of influenza with 124 hospital admissions is submitted as being of general interest in that from start to finish each case was under continuous medical observation

Three outstanding features were

(i) The marked and lasting debility
(ii) The intermittent fever
(iii) The lack of early bacterial immunity and debility allowing secondary invasion of common organisms

The blood samples which gave a positive complement fixation reaction to influenza B antigen were from patients still in hospital after forty two days illness the average duration being only eleven days (A further blood gave a positive result against Q fever)

In spite of a cautious reluctance to be dogmatic in the diagnosis of true influenza it is felt that in the cases under consideration the diagnosis is established beyond reasonable doubt

To conclude on a note of speculation the series of major peaks in the admission chart (fig 1) suggests the incubation period of the infection to be five days and a tentative comparison with the temperature charts shows that on the average the second rise occurs five days after the first Perhaps the virologist may correlate this observation with his knowledge of the life cycle of the influenza virus. It has been suggested however that the intermittent fever is due to secondary coccal invasion but this is not borne out by the following facts

(i) The second rise occurred in cases with no clinical evidence of complication

(ii) It also occurred in cases undergoing intensive treatment with penicillin and sulphatriad

(iii) Nor did its appearance in complicated cases run parallel with the symptomatology of the complication

It is therefore emphasized from the study of case histories and temperature charts that the intermittent temperature is independent of any secondary infection and is a characteristic of the primary condition

I wish to thank Surgeon Lieutenant Commander S D Moss R N for access to his records of non hospital cases and the Director of the Public Health Bacteriological Laboratory at Exeter for his help with the virus investigation

Clinical Notes and Cases

A FIBROUS GROWTH IN RELATION TO A PERMANENT UPPER CANINE

BY

Surgeon Commander (D) L. A. MOULES, R.N.

[illegible] aged 23 reported complaining of the condition shown in the photograph. A [illegible] diffuse swelling was present over 3. It had been present about two years [illegible] no symptoms other than disturbing the symmetry of the [illegible] suggested a thickening of the periodontal membrane and ran [illegible] upper bed area.

[illegible] the bony swelling was found to be expanded outer alveolar plate which [illegible] a fibrous growth embracing the buccal aspect of the tooth. The [illegible] and was seen to be attached by a pedicle to the periodontal [illegible] 3 and the septum between 3 and 4.

Both the tooth and the septum were removed.

Healing [illegible]

A CASE OF FAMILIAL PARALYSIS

BY

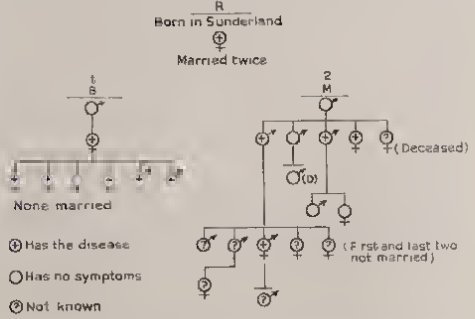
Surgeon Commander B LEWIS R N

THE patient is a Chief Petty Officer aged 38 who has never previously reported sick but is compelled on this occasion to do so because of the possible occurrence of situations embarrassing both to himself and his Admiral, to whom he had been appointed as chauffeur

Since his earliest childhood he has suffered from attacks of general weakness usually following over exertion or strenuous employment with onset about an hour after relaxation The first warning is a heavy tired feeling with increasing difficulty in maintaining fixation of vision and progressing if he takes no action to complete motor paralysis apart from some residual movement of the hands and feet Breathing and swallowing remain unaffected and his hearing is unimpaired Sensation remains normal

After an hour or two movement gradually returns commencing in the hands and feet with recovery in the trunk muscles last He can always prevent the onset of an attack by walking about briskly for ten minutes or so and it was the prospect of having to stop his Admiral's car and leave him by the roadside whilst he proceeded on a ten minutes ramble by himself that drove him to report sick In confirmation of the effect of continued movement is the observation that his eyelids remain fully mobile during an attack owing to the normal frequent blinking movements Conversely he can usually bring on an attack by allowing himself to relax completely

He has observed that if he permits a severe attack to take its full course he will be relatively free from trouble for some time On two occasions has he woken up to find himself paralysed and on both occasions he has suffered



great mental and physical anguish as he was unable to [illegible] being powerless to leave his bed

Clinically he is a normal healthy man nor did [illegible] reveal any abnormality

His family tree with affected members is appended

This disease is said to be due to a disorder of the serum potassium causing an inability to form or release acetylcholine at the myoneural junction It is therefore usually recommended that potassium chloride be given to cut short an attack (this it usually does) In this case however it had no effect whatever Another member of the family was investigated in St Bartholomew s Hospital London and a similar atypical potassium response was noted

It is interesting to note that in spite of the extreme degree of paralysis when fully developed this man has served for twenty three years and has risen from Boy to Upper Deck Chief Petty Officer without his disability being suspected and had it not been for the mischance of his appointment to a post which he could not possibly fill without discovery he might well have served his time without ever appearing in the medical records at all

My thanks are due to Surgeon Rear Admiral Hunt for permission to publish this case

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CLINICAL PATHOLOGISTS' MEETING AT R.N. HOSPITAL, CHATHAM

On Saturday 22nd April 1950 the South Eastern Branch of the Association of Clinical Pathologists held its half yearly meeting in the Royal Naval Hospital Chatham by kind permission of Surgeon Rear Admiral K A I MacKenzie K H P who opened the proceedings with a brief address of welcome after which several interesting papers were read and numbers of demonstrations were shown including sixteen microscopical preparations The Branch was honoured by the presence of the President of the Association Dr Norah Schuster who had made a special journey to attend

Dr A G Shera produced evidence of infection of the bowel by the organisms of Vincent s disease and gave useful advice on the treatment of this condition Dr B P Marmion of the Central Public Health Laboratories Colindale gave an authoritative review of Q fever Dr C K McDonald gave a most interesting account of an outbreak of typhoid fever in S S *Mooltan* and its control with the aid of chloramphenicol and Surgeon Commander F W Froggatt read a short paper on submarine deaths, with special reference to the *Truculent* disaster Amongst the demonstrations were a collection of beautiful drawings and paintings of pathological specimens by Miss Plumbridge, B Sc of Godalming

The Officers Mess was somewhat crowded with thirty one extra for lunch but the guests appeared to enjoy themselves, and the day was rounded off by tea presided over by the Principal Matron

Reviews

[illegible]

This [illegible] Mr R R [illegible] Mr H [illegible] Bell [illegible] 1890.

The [illegible] the alphabet [illegible] The terms [illegible] price [illegible] adequate [illegible] a short note of the [illegible]

An excellent [illegible] notes on weights and [illegible] and an appendix [illegible]

This book [illegible] the student and [illegible]

Operative Surgery [illegible] Mills M D [illegible] F R C S [illegible] Surgeon [illegible] Hospital and Sir James Learmonth [illegible] C B [illegible] M D [illegible] Professor of Clinical Surgery [illegible] Surgeon [illegible] Edinburgh 1890 Pp 558 with 235 illustrations London [illegible] University Press Price 30s 6d

This [illegible] Edinburgh School [illegible] standpoint [illegible]

A [illegible] attribute is [illegible] at [illegible] Dr [illegible] [illegible] a compound [illegible] text which [illegible] the [illegible] continual [illegible] design [illegible]

Unusual and [illegible]

Usually is the [illegible] improvement [illegible] most careful [illegible] readable [illegible] which the edit [illegible]

Emergency Surgery [illegible] By [illegible] F R C S [illegible] F R S E Assistant to N M Matheson [illegible] 1890 Pp 556 [illegible] illustrations [illegible] which are in colour London John Wright and [illegible] London Simpkin Marshall Ltd Price 21s [illegible]

The third [illegible] This excellent work [illegible] and maintains the [illegible] standard it has paid [illegible]

The [illegible] Cardiac [illegible] generation [illegible] Electric [illegible] an excellent chapter [illegible] [illegible] the [illegible] [illegible] that the [illegible]

[illegible] Dental Issues [illegible] appendix to [illegible] is in the right [illegible] issue

[illegible] Dental will appear in the April issue [illegible] Dental Journal [illegible] both in tribunals dealing with and the [illegible] and dental [illegible] [illegible] are well stressed

Eye Surgery. By Hamilton Bailey F.R.C.S., F.A.C.S., F.R.C.S., F.R.S.E., Surgeon [illegible] Pp. 714. [illegible] 8/6 net. [illegible] Bristol: John Wright & Sons, Ltd. [illegible]

[illegible] to the [illegible] difficult [illegible] which [illegible] should not have. Eyes Surgical Handbook [illegible] of the books [illegible] This book originally published in 1884 [illegible] and the edition under review is the most admirably produced [illegible] of Mr. Hamilton Bailey.

In a [illegible] this type there must necessarily be [illegible] and treatments with which a practitioner [illegible] agree. In this case these are remarkably few. Attention is drawn to the excellent [illegible] of the injuries, a [illegible] and post-operative treatment and there are illustrations. The last section [illegible] and such specialised techniques as bronchographs should be included but apart from the diseases in the [illegible] grade pathogram.

It is considered that this book should be a valuable one. Full and medical officers and [illegible] should be [illegible] in medicine [illegible] the [illegible]

Prevention of Burns in the Home. By Leonard Colebrook, M.B., F.R.C.O.G., F.R.S. 1950. Pp. 20. London: The Prevention Association. [illegible]

This brochure, which is reprint number six, was published originally in the F.P.A. Journal No. 8. It gives a balanced account of the dangers to be encountered from fires in the home. It emphasizes especially the dangers from an unguarded fire of all descriptions to the youngest and oldest age groups. The pictorial illustrations give very effective support to the subject matter.

Recommendations for the prevention of such accidents are also included.

Nomenclature of Fungi Pathogenic to Man and Animals. By the Medical Mycology Committee of the Medical Research Council. Memorandum No. 23. 1949. Pp. 12. London: His Majesty's Stationery Office. Price 6d.

This memorandum should be [illegible] to clarify the chaos in nomenclature which has existed in the present over the naming of fungi.

It is an alphabetical list containing the names of some sixty fungi pathogenic to this country and the diseases attributed to them. Differences of type clearly distinguish those names which are recommended to be used for their synonyms which are proposed to drop.

The Sulphonamides. By E. Hawking, M.D., National Institute for Medical Research, London, and J. Stewart Lawrence, M.D., M.R.C.P., Physician-in-Charge, Walkden Hospital, Manchester. 1950. Pp. 395, with 46 illustrations including 12 plates (several in colour) and 17 tables. 25 pages of alphabetic bibliography. London: H. K. Lewis & Co., Ltd. Price 42s.

A [illegible] account of the sulphonamides has long been awaited. Following the [illegible] of sulphonamides their development and field of application expanded with [illegible] rapidity. This expansion in later years has slowed down and as the authors point out the time is ripe for a survey of this field of treatment. The publication under review is an alphabetic study of this field of medicine. The earlier chapters are devoted to the historical aspect and to the chemistry and the antibacterial aspects of the sulphonamides, the distribution in the body fluids, the action upon bacteria, the

[illegible] the pharmacology [illegible] pages in the [illegible] in trade and the [illegible] Tropical nard [illegible] the chemical composition [illegible] Chapters contain [illegible] the most [illegible] the text in the [illegible] special in medicine [illegible] all cases of spasm. Chapter [illegible] Tranquillizers and hypnotics [illegible] sedatives and hypnotics [illegible] psychiatry [illegible] whilst subclinical of the [illegible] with and the [illegible] Under miscellaneous [illegible] anthrax, anthelmintics and other conditions [illegible] still the [illegible] in mind with the treatment [illegible] table [illegible] the [illegible] Epilepsy. The attitude is explained [illegible] expressed. Although the text [illegible] with the introduction of sulphanilamide [illegible] the [illegible] and [illegible] the [illegible] not to be indicated [illegible] will not [illegible] the [illegible] the [illegible] sulphanilamide is such that [illegible] in the ordinary way.

We acknowledge with thanks receipt of the following publications

Anales de la Facultad de Medicina de Montevideo — *Annales de Medecine Coloniale* — *Annals of Tropical Medicine and Parasitology* — *Archivos de Salud Publica* — *Army Medical Services Magazine* — *Australian Journal of Experimental Biology and Medical Science* — *Boletin de Sanidad Militar* — *British Journal of Surgery* — *British Medical Journal* — *Broad Way* — *Westminster Hospital* — *Bulletin International des Services de Sante* — *Chronicle of the Health Organisation* — *Clinical Journal* — *Guy's Hospital Gazette* — *Journal of the Bowman Gray School of Medicine* — *Journal of the Medical Association of Fiji* — *Journal of the Royal Army Medical Corps* — *Journal of the Royal Naval Scientific Service* — *London Hospital Gazette* — *Medical Journal of Australia* — *Medical Press* — *Middlesex Hospital Journal* — *Military Surgeon* — *Proceedings of the Staff Meetings of the Mayo Clinic* — *Revista de la Asociacion Medica Argentina* — *Revista De Medicina Aeronautica* — *Royal Melbourne Hospital Clinical Reports* — *St. Mary's Hospital Gazette* — *St. Thomas's Hospital Gazette* — *Tropical Diseases Bulletin* — *University of Durham Gazette* — *United States Medical Bulletin* — *United States Armed Forces Medical Journal* — *United States Medical Technicians Bulletin* — *West Indian Medical Journal* — *World Health Organisation Technical Report Series*.

E. & S. Livingstone Ltd. — A copy of the first revised and enlarged published catalogue of books can be obtained from them at 8 Teviot Place, Edinburgh.

News of the Service

OBITUARY

We regret to record the following deaths and extend our sympathy to their families.

Surgeon Captain R. H. J. BROWNE, *O.B.E.*, R.N. (Ret.) died on 30th March 1951. Born in August 1868, he qualified in 1888 and joined the R.N. Medical Service as Surgeon in 1890. He was promoted Fleet Surgeon in 1896, Staff Surgeon in 1903, Surgeon Commander in 1904, and was placed on the Retired List with the rank of Surgeon Captain in August 1918. Surgeon Captain Browne served with Jellicoe and Beatty. In the Boxer rising in 1900 he was Medical Officer attached to the storming party that took Laka, and in World War I he was surgeon in Beatty's flagship *Lion*. He was awarded the O.B.E. during the first World War.

[illegible] Captain [illegible] LAVIRCE, R.N. (Ret.) [illegible] 1874 [illegible] 1894 and [illegible] the R.N. Medical [illegible] 1901. He was promoted Staff Surgeon in 1909. [illegible] 1914 [illegible] the Retired List in the rank of Surgeon [illegible] 1921. During the [illegible] Wars he served in H.M. Ships [illegible] and *Cassandra*.

Surgeon Captain [illegible] GIBSON, R.N. (Ret.) [illegible] March 1950. Born in [illegible] 1886 he [illegible] Mullen high School [illegible] and King's College Hospital and qualified [illegible] R.C.S. in 1931.

He joined the R.N. Medical Service as a Surgeon Lieutenant in October 1912 and was promoted to Surgeon Lieutenant Commander in 1918, [illegible] Commander in 1924, Surgeon Captain in 1936 and on [illegible] the Retired List on December 1943 but continued [illegible] until March 1946 when he [illegible] (medically unfit).

During the First World War he served in H.M. Ships *Yarmouth* and *Hunter* and at R.N. Hospitals Malta and Chatham. During the Second World War he served in R.N. Hospitals Portsmouth, R.N. Hospital Chatham and R.N. Auxiliary Hospital Sherborne. He [illegible] years Surgeon Captain Gibson held many important posts which included service in R.N. Hospitals Hong Kong and Haslar. Although [illegible] as a Medical Specialist he did a considerable amount of surgery in his early days before dispensing treatment with his insight.

Peter Gibson was without any question one of the most [illegible] men that has been on good fortune [illegible] the Royal Naval Medical Service. Skilled and possessing a wide knowledge of his profession he put his whole heart and soul into the care of the sick and ailing. Time and again a thing to him when there was a problem [illegible] was unmitigated. Health happy in his family life he radiated that happiness [illegible] with whom he came into contact.

All his old friends will miss him sadly. Our sympathy is extended to his widow and family in their irreparable loss.

Surgeon Captain M. C. LANCFORD, R.N. (Ret.) died on 1st May 1950. Born in March 1869 he qualified in 1892 and entered the R.N. Medical Service as a Surgeon in 1896. He was promoted to Staff Surgeon in 1901, Surgeon Commander in 1909 and retired on the Retired List in February 1914 but was re-employed during the First World War in August 1914 until November 1917 serving in the Medical Department Admiralty.

Surgeon Captain L. R. LLOYD JONES, R.N. (Ret.) died on 16th February 1950. Born in May 1882 he qualified in 1908 and joined the R.N. Medical Service as a Surgeon in November 1908. He was promoted Surgeon Lieutenant Commander in 1914, Surgeon Commander in 1921 and was placed on the Retired List in the rank of Surgeon Captain in September 1938. During the First World War he served in H.M. Ships *General* [illegible] and *Cullist*. On his retirement in 1938 he specialised in V.D. work and held appointments at the Ministry of Health and the West London Hospital. He was also Honorary Surgeon to the V.D. Dept. St. Paul's Hospital.

During the Second World War Surgeon Captain Lloyd Jones was re-employed from November 1939 until October 1946 and served at R.N. Barracks Portsmouth, R.N. Hospital Haslar and organized and developed the Navy Wing for V.D. at Queen Alexandra's Hospital Portsmouth. He was also Consultant in V.D. to the Royal Navy from 1942 until 1946 and performed valuable service in research and administrative duties. His principal work was in organizing [illegible] in the Navy but in Civilian life [illegible] in all [illegible].

Surgeon Captain C. G. STRAGEL, R.N. (Ret.) died on 11th March 1950. Born in March 1885 he qualified in 1909 and joined the R.N. Medical Service as a Surgeon in November 1909. He was promoted Surgeon Lieutenant Commander in 1915, Surgeon Commander in 1921 and placed on the Retired List in January 1941 but continued [illegible] until 1947.

[illegible] the [illegible] Surgeon Captain [illegible] *Hostile* and *H*[illegible] during the Second World War [illegible] Headquarters.

HONOURS AND AWARDS

Appointed Honorary Dental Surgeon to the King

Surgeon Captain D. L. R. P. Williams, *O.B.E.*, L.D.S., L.D.C., [illegible]

PROMOTIONS

[illegible] Acting Lieutenant Surgeon Commander to

Surgeon Lieutenant Commanders J. L. [illegible] J. [illegible]
[illegible] A. M. [illegible] R. F. Phillips, J. Thorne.

[illegible] Surgeon Lieutenant Commander

Acting Lieutenant Surgeon Lieutenant Commanders A. D. [illegible]
Surgeon Lieutenants S. D. Moss, J. Watt.

[illegible] Surgeon Lieutenant Commander (D)

Acting Surgeon Lieutenant Commander (D) W. S. [illegible]

[illegible] Acting Lieutenant Surgeon Lieutenant Commander

Surgeon Lieutenant J. J. Griffiths, W. B. Jack, [illegible] J. D.

TRANSFERS TO PERMANENT LIST

Surgeon Lieutenant D. A. Dunham, R.N.

ENTERED FOR SHORT SERVICE COMMISSIONS

A. A. Bartholomew, M.R.C.S., L.R.C.P., G. S. Black, M.B., B.S., [illegible] L.M.S.S.A., H. J. A. Holo, M.B., B.S., M.R.C.S., L.R.C.P., D. L. T. Wells, M.B., [illegible]

RETIREMENTS

Surgeon Captain J. C. Sutherland (medically unfit), Surgeon Commander E. A. [illegible] (on request), Surgeon Commander D. C. Deal (medically unfit), Surgeon Commander E. J. Lithgow (invalided), Surgeon Commander J. G. Marc Nisbet (on [illegible]), Surgeon Lieutenant J. C. Shipley, on retirement of Short Service Commission, Surgeon Lieutenant E. M. Vasey (invalided), Short Service Commission, Acting Surgeon Lieutenant D. M. B. King, (medically unfit).

Surgeon Commander (D) H. V. Pall (on request).

WITHDRAWALS FROM SHORT SERVICE COMMISSION

Surgeon Lieutenants D. J. Turner, A. H. J. Whitehouse.

Surgeon Lieutenant (D) D. J. Fleming.

CORRECTION

JOURNAL OF THE R.N. MEDICAL SERVICE, April 1950, page 106

Lieutenant Surgeon Commander (D)

Acting Surgeon Commanders (D)

Add

Lieutenant Surgeon Commander (D)

Acting Surgeon Commanders (D)

ADMIRALTY FLEET ORDERS

***770 —Medical Treatment of Officers and Ratings when Sick on Shore on Leave or on Detached Duty—Use of Form S 26 Amended to Apply to Officers and Ratings**

(C W M D G 19905 49 —17 Mar 1950)

1027 —Medical—Inoculation against Cholera—Saudi Arabia

(M D G 5625 50 —7 Apr 1950)

(A F O 390 50)

1062 —Dental—Waste Dental Wax—Return for Re conditioning

(M D G 5384 50 7 Apr 1950)

(A F O 3812 42 cancelled)

1116 —Hospitals—R N Hospitals and R N Sick Quarters—Home

1380 —Dental—National Health Service (Dental Services)—Scale of Fees Amendment

Notice

THE Editors invite [illegible] to send in original papers [illegible] travel personal experiences &c Items of news and matters [illegible] medical service will be welcomed from ships and establishment[illegible] stations Notices of births marriages and deaths are inserted free of [illegible]

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The Harvard system should be employed for bibliographical references these references being arranged in alphabetical order of the authors names at the end of the contribution thus Smith T G (1935) *J roy nav med Serv* 22 53 In the text a reference to a publication should be cited by giving the author and in brackets the date thus Smith (1935) believed this to be true &c

All communications should reach the Editors on or before the first of the month preceding the date of issue Unless clearly written they should be typed in order to avoid mistakes and they should be addressed to the Editor JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE Monckton House Alverstoke Gosport Hants

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VOLUME XXXVI OCTOBER 1950 No. 4

Journal
of the
Royal Naval Medical Service.

Editorial

We must apologize for the delay in the appearance of this our October number but it has been unavoidable owing to circumstances over which we have no control arising out of industrial dispute in the Printing Trade. We trust that our subscribers will be adequately compensated for their wait by the articles contained herein.

May we again appeal for original articles particularly those of a clinical historical nature or those concerned with naval medical and dental practice.

Articles

THE TREATMENT OF BURNS
A Review of Methods Past and Present

BY

Surgeon Commander W. V. BEACH, *O.B.E.*, R.N.

The great increase in burns casualties witnessed during the recent World War did not considerable new interest to a problem which has always been of great importance but the threat of atomic warfare in the future raises the subject to one of the highest importance. Quite apart from the vast number of flash burns which are to be expected in all those directly exposed to the explosion as well lethal distances innumerable fires are liable to be started. Not only is direct combustion of all combustible material including wood to be expected but the collapse of small houses of little intrinsic strength which comprise the great majority of those built to-day is inevitable and in consequence numerous fires can be anticipated. This is well illustrated at Hiroshima where nearly all the city was of wooden construction and where many fires sprang up well outside the range of direct combustion due to the collapse of small buildings.

It has been stated that if a bomb similar to that dropped at Nagasaki was

exploded [illegible] would be approximately 500 000 killed and 450 000 burns casualties [illegible] 150 000 would die within a very short time leaving some 300 000 [illegible] treated. These astronomical figures give us some idea of the problems which we may be faced and it is well to bear them in mind when [illegible] any particular system of treatment.

The literature dealing [illegible] vast and no attempt is made here to present a comprehensive [illegible] of the treatments recommended. During the course of recent years [illegible] like fifteen hundred articles on burns have been published many advocating treatments based on the experience of two or three cases. It is little wonder that the treatment of burns has been described as chaotic. The [illegible] is rather to make a general survey of the more popular methods of treatment recorded in the literature and also as studied during personal visits to several centres specializing in the treatment of burns. For the sake of continuity in sketching the history of the subject and since local treatment was formerly thought to be of paramount importance it will be considered first. It is only in a much later date that it was realized that the systemic effects of burns were of far greater importance than the immediate treatment of the burned area.

Classification

It would be as well if Dupuytren's classification with its six degrees of burning disappeared from the literature but unfortunately it is still reproduced in some of the recent text books. The only simple and practical classification need convey is whether the skin has been partially or wholly destroyed. Nevertheless it is useful to retain the so-called Anderson classification with three degrees of burning, the difference being between the first and second is sometimes important.

(1) Erythema } Partial skin loss
(2) Visible formation of blisters, epidermis destroyed, dermis intact skin
(3) Complete destruction of skin or underlying tissues. Whole skin loss.

After reviewing the various methods an attempt will be made to formulate a rationale of treatment with special reference to the requirements of the Fighting Services.

Cooling

The first article on the treatment of burns published in the Journal was that of Dunlop (1928) who showed that his results were obtained by the application of tannic acid. There can be no doubt that this method is still in many hands and regularly used. The premature disappearance of the use of tannic acid during the years between the two World Wars during was the method of choice in the treatment of industrial burns casualties. After its first enthusiastic acceptance however some workers began to be dissatisfied with the results. While tanning prevented the immediate loss of fluid and thereby saved lives in an age when infusion therapy is not known it was found to induce secondary infection which usually followed from the high coagulation eschar, a high pulse rate, retained sepsis and septic absorption, [illegible] and [illegible] and [illegible] contractures.

In an attempt to prevent this [illegible] (1937) introduced Triple Dye Solution which was intended to [illegible] bacterial action not possessed by tannic acid. This mixture which [illegible] used has the following formula:

Crystal violet	0·5 per cent [illegible] solution	
Brilliant green	0·1 per cent [illegible] solution	*equal parts*
Acriflavine	0·1 per cent [illegible] solution	

It met many of the objections raised against tannic acid and in many establishments entirely replaced it. The resulting coagulum was softer than that produced by tannic acid and even more so than that produced by the application of tannic acid followed by silver nitrate. Many variations in the strength of the latter combination were advocated. One which produced a very satisfactory coagulum was tannic acid 10 per cent followed by silver nitrate 5 per cent. This combination enjoyed no even in [illegible] popularity than tannic acid used alone.

Probably the marked success of the tanning method was due to the fact that the great majority of civilian burns are superficial scalds with little or no complete destruction of the deep layers of the skin. In such burns it can safely be said that a good result will follow almost any treatment which keeps the area clean. Nevertheless this method is still in use to-day in some centres notably Edinburgh and it is recommended by Walker (1948) in the recently published British Surgical Practice.

Much has been written about the dangers of liver necrosis due to the use of tannic acid (Moulem 1941, Wells 1942, Erb 1943) but as Edwards (1948) points out liver necrosis and duodenal ulceration following burns were well known long before tanning was introduced. Salomskill (1948) and his colleagues investigating liver function in burns found greater tendency to liver necrosis than when other non-coagulating dressings are used but nevertheless the incidence is no more with tannic acid and its use is therefore of no significance in determining the survival rate.

In this connexion it is perhaps worth mentioning here the case of the worst burned patient which I have ever seen survive and which illustrates one of the less common complications of burns. He was a young negro who was working with petrol spilled over the surrounding ground and dressed only in a pair of strap type of bathing slip. A chance spark caused an explosion and he sustained second and third degree burns over the entire body with the exception of the natal cleft and the part of his scalp which is covered by his woolly hair. Within two hours he was treated by infusion of saline only, excision of massive blisters where possible and tanning with tannic acid 10 per cent and silver nitrate 5 per cent. He was certainly not expected to survive but apart from a perforated duodenal ulcer on the fourteenth day which was successfully sutured he made an excellent recovery.

The immense value of tanning lay in its suitability for use with large numbers of cases with a minimum of equipment. This was well illustrated after the sinking of the transport *Lancastria* during the evacuation of France

in 1940. At [illegible] and 110 cases of severe burns caused by flash and burning oil were admitted to the Royal Naval Hospital, Plymouth, during the space of three hours. All were treated by toilet and tanning, under pentothal anaesthesia, with a mortality of only four. Undoubtedly in these days of adequate infusion therapy, sulphonamides and penicillin this would have been even less.

The advent of the air war and particularly the Battle of Britain soon produced burns of such severity and depth that it at once became apparent that tanning was unsuitable for third degree burns. Tanned fingers for example quickly became necrotic due to the contraction of the coagulum constricting the blood supply, and tanned eyelids became so stiff that closure of the eye became impossible and corneal ulceration and even perforation soon occurred. Deep burns became heavily infected beneath the coagulum and septic absorption was marked (Wakeley and McIntosh 1940). In these circumstances the Royal Air Force which at that time had most experience of the severe type of petrol burn formulated a new policy. In essentials this was:

(1) To condemn coagulation treatment.
(2) To institute treatment by means of normal saline.
(3) The formation of special Burns Centres where reconstructive surgery could follow this treatment.

The Saline Bath

Saline baths were installed in these Centres and elsewhere including some of the Royal Naval Hospitals. These enabled a burned patient to be immersed in a bath of physiologically normal saline maintained at a constant temperature and at a constant salinity. To achieve this the bath has steadily to be replenished with warm saline. This naturally involves an elaborate and expensive apparatus and a large number of nursing staff. As the patient has to be lifted into and out of the bath the difficulties of nursing are obvious and a very heavy and badly burned patient is a problem indeed.

The use made of these baths varied greatly. Some establishments used them a few times and then gave up because of nursing difficulties, while in the case of the R.A.F. Hospital at Halton the bath is still in use—and for its original purpose! In two other establishments which I visited the baths had in one case been removed and the room converted to other uses, while in the other although the bath remained it had not been used for its intended purpose for years, and I was assured that nobody now in the establishment knew how to operate the saline-producing apparatus. There can be no doubt that the saline bath routine is excellent for the treatment of the occasional severe burn in a generously staffed hospital, but it can play little or no part in a scheme designed to treat the quantities of burns casualties which are envisaged in any future conflict.

Plaster Casts

With the partial abandonment of tanning and triple dye came other methods in addition to saline. Trueta and Barnes (1941) advocated the use of plaster casts and because of its simplicity and suitability for ease of transporta

tion, the method found some support. Apart from the disadvantages of the smell and the obvious danger of septic absorption an important drawback to this method is that partially burned and still viable skin may have be destroyed by infection beneath the plaster. The introduction of local and systemic chemotherapy may again lead to some revival of this method in time of war where rapid evacuation of casualties is a prime necessity.

The Bunyan Standard Bag

About this same time Bunyan (1941) reintroduced treatment by means of transparent waterproof bags enveloping the burnt area—a method first used by Douglas (1936). Modifications included the use of electrolytic sodium hypochlorite in increasing strengths to irrigate the burn and flush through the envelope. The latter is then blown through with oxygen. This method still has many adherents among them Professor Kilner (1950) and his team of workers at the Nuffield Department of Plastic Surgery at Oxford and Stoke Mandeville. Due to their kindness I have shown much of their work and also films which they had made of cases treated by this method. It is particularly impressive to see the ease with which patients with severe body burns are nursed in the irrigation bed.

This method has many advantages over the saline bath. Nursing is infinitely easier: there are no dressings to be applied or soaked off: the patient is more mobile in bed and joint movements are unrestricted by dressings which must follow the saline bath. The wounds are easily inspected through the transparent envelope: pressure to prevent œdema—always a problem—can be applied over the bag and smell is reduced to a minimum. In burned limbs the area can be isolated completely and cross infection abolished. The irrigation bed for use in extensive burns of the trunk can be managed by two nurses: for the patient is encouraged to roll from side to side as the oiled silk coverings and nightdress are changed and no heavy lifting is involved. The smooth surface of this material does not irritate or adhere to the burned areas and the patient's confidence in his ability to move is soon restored. One severely burned female patient who was seen undergoing treatment had for the previous two months been treated elsewhere by pressure dressings over tulle gras. These were changed at weekly intervals under general anæsthesia. To add to the difficulties she was eight months pregnant and grossly overweight. In reply to questions she left no manner of doubt as to the great improvement in her morale and general condition since she had been transferred to the irrigation bed. When grafting is to be undertaken pressure can easily be applied outside the envelopes to flatten the granulations as necessary and after the grafts have taken the cleansing irrigations can be resumed without fear of damaging the new skin.

In this method burns of the face are treated by cleansing with electrolytic sodium hypochlorite (Milton) 5 per cent: a layer of tulle gras is spread over the burn, four layers of gauze soaked in Milton are added and a bandage applied in the usual way to leave an opening for the mouth. Generally speaking healing of the face is more rapid than elsewhere and it is found that the dressings

when changed are [illegible] are employed

This method of [illegible] of equipment would [illegible] major burns [illegible] necessary apparatus is [illegible] space [illegible] consideration in the [illegible] Where [illegible] of the patients occur [illegible] of cross infection

Saline Compress

By 1942 modification [illegible] saline method of treatment which [illegible] nursing [illegible] Most saline dressings changed less frequently than before [illegible] pressure [illegible] applied over layers of absorbent material (Allison and Koch 1942) [illegible] technique for burns [illegible] trunk. Limbs could still be [illegible] and leg burns if dressed [illegible] dressings [illegible] fourteen days. Further the [illegible] this longer [illegible]

Various developments [illegible] methods employing [illegible] saline dressings over [illegible] and third degree burns. Pressure bandages [illegible] included to control edema. Opinion [illegible] the length of time that these dressings can be left on before [illegible] unnecessary. Few advocate that they should be left on longer than [illegible] and the majority insist on a change of dressings every four to seven days. The amount of chemotherapy given or tolerated by the patient will inevitably have a direct influence on this point as will the degree of infection sustained before treatment commenced. If a patient's condition is so grave as to preclude adequate cleansing of the area a change of dressing will have to be made as soon as the general condition improves and the time between changes will tend to lengthen as infection becomes controlled.

Sulphanilamide Cream

Before the introduction of penicillin the sulphonamides in the form of a cream or a powder enjoyed popularity. The powder quickly fell into disfavour on account of the danger of absorption from large areas and consequent overdosage. Various combinations were advocated and strong claims were advanced for a proflavine and sulphanilamide mixture. As Glasgow No. 9 Cream sulphanilamide is still in use in some Centres but the availability of safer and more stable penicillin suggests that this will eventually replace the sulphonamides as a local application even in the forward battle areas.

'Open' Method

Wallace (1949) has recently expressed satisfaction with an 'open' method especially applicable to children. This is of course only possible in burns over

[illegible]

Immediate Management.

Probably the [illegible] skin loss burns is immediate [illegible] the patient's general condition [illegible] Dressings will be covered when skin grafting is considered. At the Royal Victoria Accident Hospital any burn up to [illegible] suitable for this form of treatment. [illegible] are able to remove [illegible] grafting, but the delayed in the more [illegible] The percentage of takes [illegible] greatly lessened, but [illegible] from organizing granulation.

The use of [illegible] of mass of dead skin [illegible] of doubtful viability can be [illegible] from the epithelium of the skin [illegible] which will be more [illegible] skin [illegible] will take a longer time [illegible] antiseptic is natural skin [illegible] Several tests have been described [illegible] reasonable certainty. Dilute [illegible] of solution fluorescein [illegible] in ultra violet light through Wood's filter. [illegible] black and viable skin [illegible] an opinion [illegible] highly important [illegible] Parey and Scriff (1944-1945) [illegible] (picro-indigo-carmine) to the [illegible]

A [illegible] Accident Hospital Burns Unit [illegible] quick. A series of experiments [illegible] and purposes

[illegible] of whole skin loss were anesthetic to pin prick. While [illegible] in practice the method has been found very satisfactory and extensive burns are grafted at clean recent burns are carried out if this test indicates [illegible] skin loss. The appearance of a burned area may be entirely misleading. Congestion in the capillaries often continues for some time before coming to [illegible] and while the whole area may be bright red being packed with red cells in a state of stasis these cells may be dead. There is a widespread but fallacious belief that a partial thickness burn is hyperalgesic when in reality it is the surrounding skin which is hyperalgesic. This is true except in very slight burns such as those caused by ultra violet light. In general therefore partial skin loss shows partial loss of pain sensation to pin prick and only in whole skin loss is there total loss of pain sensation.

Penicillin Cream

Of the many local applications which have been used probably the most satisfactory *and generally applicable* preparation is penicillin cream. The strength originally employed by Colebrook (1946) was 400 units per gramme but controlled experiments have shown that 10 000 units per gramme is preferable. Despite the possibility of sensitivity of the patient's skin to penicillin this cream has proved satisfactory for cases which cannot be treated by the ideal method of immediate skin grafting. Experience has shown that even without parenteral penicillin and after gentle cleansing of the burned area with 1 per cent C I A B (cetyl trimethyl ammonium bromide) deep burns can be dressed with this cream and left up to sixteen days when the area will usually be found suitable for grafting after removal of granulations and excision of sloughs.

The rough cleaning and scrubbing to which burned patients were formerly subjected must be rigorously condemned. Not only was shock thereby increased but profound but great damage was done to areas of partial skin loss which until the scrubbing were probably viable. During the war at sea burns are often contaminated by fuel oil from sunken ships and its removal is most troublesome. Triclene has been found very useful for this purpose being an excellent solvent for grease and oil. Blisters should not be cut away but instead the fluid should be let out through tiny punctures made with a sterile needle. Some authorities aspirate the fluid and irrigate the enclosed area through the same needle while others make a point of aspirating through healthy tissue by means of a long needle (Kazanjian and Converse 1949). By whichever method used the covering of epithelium is left as a protection against the penetration of infection and this is shed as new epithelium develops beneath it.

In the application of these dressings to burns the greatest care must be taken to ensure that

(a) The dressings of penicillin cream and tulle gras cover the burned area completely.

(b) The gauze dressings completely cover the tulle gras.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

With such penicillin treatment dressing applied and well sealed, the burned areas can be left in the patient evacuated during the next [illegible] fifteen days provided there is no general illness and the patient remains satisfactory. By this time the new tissue is about the burned area will have a fairly different appearance and may include skin loss. The tissue will be healthy, a bright red and fairly tough bearing granulation through which slight elevation or grinding sutures. The presence of the slough is then almost the only hindrance to skin grafting. Various applications have been made in attempts to hasten the separation of the slough and portions of it have been reported as having a special assistance. Probably the most satisfactory procedure is excision of the slough and immediate application of split skin graft. Even in the presence of extensive tissue loss information the graft take very well provided all dead tissue is thoroughly excised and all granulation stripped. The presence of [illegible] is generally considered to be an absolute contraindication to immediate grafting, however and even minimum split skin [illegible] [illegible] [illegible]

generally [illegible]

[illegible]

[illegible] theatre. [illegible] precaution. [illegible] is dressed. [illegible] burn so that [illegible] may be [illegible] rather than [illegible] leading to the early production of resistant forms of [illegible] bacteria.

Shock and Other Systemic Causes

The treatment of shock which follows a burn is an important [illegible] great strides since the early days when morphia, warmth, sweet tea, and saline infusions [illegible] most of the [illegible] advocated. A better [illegible] standing of the changes in the blood and tissues enable treatment to be planned on sounder lines. Although morphia and warmth are still frequently prescribed as a routine in all cases of shock, there are good reasons for believing that this is greatly overdone and often [illegible] patients discomfort. Recent work suggests that morphia should be given only in sufficient quantities to allay pain *of which the patient complains*, and never in the full doses so often advised for all cases. All too frequently the mere sight of a severe wound or burn is sufficient to cause a large dose of morphia to be given to a patient whose vital centres are already depressed to the danger point, and who is consequently feeling no pain. Similarly, internal heating of the patient has in the past been practised to excess. This usually causes peripheral vasodilatation with further tendency to pooling of the burned area and consequent loss of fluid, as well as draining blood away from the already depressed vital centres to the periphery. As in the case of morphia, if the patient complains of feeling cold, then heat in moderation should be supplied. Although the patient continues to complain of cold, the heating should be carefully adjusted and the skin temperature should not be allowed to rise above 99° F. It is well known that a temperature of cold is one of the earliest symptoms of pyrexia, so that warmth should be applied to the shocked patient only on a basis of carefully controlled temperature observations, or overheating may easily develop.

The use of saline infusions in the treatment of shock has been condemned as not only useless but indeed harmful to the patient. It rapidly disappears from the blood stream into the tissues, and further increases the inevitable oedema beneath the injured surface.

The salient features in shock following burns are a fall in blood pressure which may be so low that it cannot be recorded, and a rapid loss of plasma proteins from the blood with consequent haemoconcentration. This picture varies with considerable rapidity, and it is necessary for repeated observations

[illegible]

[illegible]

[illegible]

[illegible] seasonally [illegible] [illegible] [illegible] [illegible] percentage [illegible] the [illegible] [illegible] [illegible] [illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

is [illegible] and use of interpretation. By measuring the [illegible] rate as well as the variations can be simply calculated. Haematocrits are made every hour for the first six hours and then every two hours if the patient's condition is satisfactory. These estimations do not need the help of a skilled laboratory technician but are carried out by the house surgeon on the spot. The blood is taken if necessary by means of a cephalic vein spun down, the plasma and necessary dilution made, and the [illegible] marked on the chart in approximately fifteen minutes. Not infrequently haematocrit has been brought down to normal and maintained there for six hours, is a considerable site to undertake the dressing of the [illegible].

Fluids by mouth are given freely and with every caution [illegible] loss of sodium from the normal urine is replaced by the minimum [illegible] sodium lactate—1·5 per cent. diluted [illegible] and preferably flavoured with orange juice.

Edwards (1948) suggests the following plan:

Blood and plasma 4·6 pints in the preparation [illegible] for two days provided the urinary output is adequate. [illegible] (1945) advises that for every pint of blood transfused 8 grammes of sodium bicarbonate should be given orally.

Recently Dextran—a polysaccharide—has been introduced as a plasma substitute for plasma and [illegible] the claims advanced are not all proven [illegible] important factor in the treatment of the [illegible] during atomic warfare and [illegible] supplies of plasma could be [illegible] inadequate. Most of the work on Dextran has been carried out in Sweden where it is reported is very satisfactory. A serious [illegible] has been found in certain of the manufactured products and [illegible] thrombosis shock, dangerous reactions to plasma. There are [illegible] possible dangers which may occur in the future. As yet [illegible] the molecular composition of the blood [illegible] and [illegible] are being made to produce Dextran with conformity but [illegible] will not be so readily excreted [illegible] which will [illegible] the kidneys which the small molecules of fully [illegible] are [illegible]. When [illegible] achieved and it is [illegible] the treatment [illegible] the use of Dextran may be extended [illegible] particularly [illegible] and it is within the [illegible] of [illegible] [illegible] and the over present possibility of [illegible].

Severe burns strike usually accompanied by [illegible] In extensive cases this is [illegible] the [illegible] of the incidence of [illegible] possibly supersedes [illegible] In third degree burns involving 60 per cent. of the body surface [illegible] (100 lb.) during the first twenty days (Coulter and 1948) [illegible] clinical patients are known to be [illegible] for these reasons the minimum output [illegible]

[illegible] This [illegible] in [illegible] places [illegible] In this [illegible] milk is [illegible] fresh [illegible] [illegible] to [illegible] [illegible] [illegible]

[illegible] the [illegible] in hospitals [illegible] and [illegible] the [illegible] the [illegible] the

[illegible] One case [illegible] a dangerously ill [illegible] patient developed deep femoral thrombosis. An operation for ligation of the femoral vein [illegible] taken from the [illegible] showed the presence of a penicillin resistant staphylococcus. Treatment by intravenous systemic aureomycin was followed by rapid recovery.

Penicillin continues the basis of our fight against the infection of burns. At the Birmingham Burns Unit it is considered that local application is normally adequate and the use of systemic penicillin is reserved for cases with special indications.

Anæsthesia

The problem of anæsthesia in relation to burns is almost as controversial as that concerned with local treatment. When a skilled anæsthetist is available the question does not arise, but in his absence the substitute is sometimes in difficulty. Expert opinion is that whenever possible endotracheal anæsthesia is desirable. This not only enables the surgeon to have a clear field around the face and head and to turn the patient into the prone position if necessary but it also gives the patient a depressed respiration under the direct control of the anæsthetist. Previous excessive sedation with morphia is an [illegible] to morphinomania which can be affected by this administration. Some authors have claimed that burns should be dressed under large doses of morphia only [illegible] the lesions just mentioned this must be condemned except possibly in the most critical cases. Pentothal or intravenous nembutal are both [illegible] since they can be administered via an existing intravenous drip. [illegible] extensive burns there is always a vein available for intravenous [illegible] the extremities or the neck. The effect of both on the vital capacity [illegible] is disappointing and skill in administration is therefore very necessary.

With the general thinking that it is more physiol. anæsthesia is frequently necessary except when skin grafting is to be undertaken at the same time. When this is so it is obviously [illegible] that the patient should be given morphia [illegible] is possible [illegible] is to obtain distribution [illegible] grafts [illegible] to [illegible]. To this end a tourniquet made of rubber tubing [illegible] is used [illegible] and rather than interfere the circulation of the arm with a tourniquet [illegible] should

Skin Grafting

[illegible] in the particular [illegible] surgeons undertake skin grafting [illegible] is [illegible] the surgeon. But [illegible] skin grafting [illegible] to [illegible] saving [illegible] and the [illegible] of protecting, cleaning, dressing, splinting, delivering [illegible] the [illegible] skin grafting, in [illegible] stimulates [illegible] promotes [illegible] and [illegible] makes his assistance risk easier. Only [illegible] prevented. The longer a granulating [illegible] is covered by epithelium the greater will be the depth and [illegible] to fibrosis which follows from the organization of granulation

[illegible] This is and results the surface more and more anaemic and [illegible] deficient in blood supply that epithelium cannot be nourished over the [illegible] Gangrenous indolent ulceration results. Further granulation tissue is formed and the vicious circle is complete (Morley 1948). Skin cover must be applied at the earliest possible moment, usually in the form of split skin or Thiersch grafts, freely cut with the Blair knife or else cut with a dermatome.

Free cut grafts should be very thin and for the great majority of those treating burns it is the method of choice. Up to 1,000 sq. cm. can be cut at one sitting and because of the thinness of the skin remaining the healing is rapid and the area should be ready for further cutting of grafts in two to three weeks. Donor areas are covered with tulle gras and carefully dressed and bandaged as described in the dressing of the burned area. It should be possible to remove this after ten days when the area will be healed. Because of the uneven depth and the irregular outline of these grafts the cosmetic effect is not very good, but this is a minor consideration when compared with the preservation of function and the avoidance of scar tissue and contractures. Later on full thickness grafts can replace the split skin grafts to improve the appearance. The grafts should be spread upon tulle gras and sutured, for ease of manipulation and application. If large areas have to be covered in persons where appearance is of secondary consideration such as the trunk and limbs, the grafts and tulle gras can be cut more generously and sutured together, with small gaps between each.

Dermatome grafts are thicker and of uniform thickness and consequently more slightly. Some surgeons, but some surgeons, are of the opinion that both extremities is needed in comparison with free cut grafts, but for general application and especially in the middle-aged patients the latter must be the method. On the face and hands dermatome grafts are preferable because of better cosmetic appearance and even thickness.

The ideal treatment for large skin loss burns is several days and multiple grafting. The burn is excised, including the eschar, and the skin all round care is taken to ensure that all dead and sloughy tissues are removed and a dermatome or Thiersch graft is then applied. When the skin is fixed by sutures and is covered with pressure dressing. It is [illegible] all margin of the graft [illegible] with tulle gras and [illegible] with blood gas [illegible] procedure is added. The aim is to prevent the formation of [illegible] and also the rapid formation of this graft. On a surgical ward [illegible] the dressing [illegible] with gras thin [illegible] by gauze, dry [illegible] and finally crepe bandage. Immobilization in a plaster of Paris or plastic splint is necessary in the [illegible] limb.

In cases where it has been necessary to amputate [illegible] to preserve [illegible] the skin of the stump [illegible] has to be covered [illegible] hemolysis sequestrum [illegible] and application [illegible] stumps to [illegible]—[illegible] and parenteral penicillin [illegible]

sloughs must be [illegible] excised, all granulating [illegible] the bed of [illegible] and all haemorrhage controlled [illegible] application of grafts. In [illegible] by this stripping [illegible] weeks [illegible]. Some prefer to apply [illegible] days in [illegible] granulations before grafting. Personally [illegible] I prefer all skin loss burns should be epithelialized in the [illegible] weeks by means of grafts. In any case all granulating [illegible] weeks old and over 1 cm. in diameter should be grafted. In the presence of infection small grafts are best as they are [illegible] between them [illegible] and they can adhere instead of being lifted off by the dressing. The dressing should take place seven days after grafting. [illegible] dressing can kill a graft which has already taken.

In these delicate cases [illegible] my magnum de there is always some degree of [illegible] to be [illegible] and which may even be the cause of a generalized [illegible] the [illegible] serum protein. Blood transfusions to bring the [illegible] to [illegible] 70 [illegible] albumins insist on 8% must be given before grafting [illegible] the take will be poor.

To allow for [illegible] and [illegible] a further insult in adequate skin should be taken and the [illegible] and [illegible] further [illegible]. These grafts spread [illegible] grafts in the [illegible] face [illegible] and covered in a [illegible] from dripping saline in a temperature of 92° F. A small piece of rubber [illegible] in the bottom of the [illegible] to keep the graft clear of the slime.

Homografts are often [illegible] in patients with burns extensive than they can [illegible] to [illegible] the [illegible] skin [illegible]. This is usual in those [illegible] skin [illegible] but this is not the essential point and any skin can be used. A simple [illegible] method is to apply the homografts in strips alternating with the patient's own skin. By the time that are thrown off in approximately seven days the patient's own donor areas are again ready for further [illegible].

In the after care [illegible] recently washed skin the nix bath, the gentle massage and [illegible] are all [illegible] [illegible] paraffin wax [illegible] applied either by painting it on or by [illegible] at a temperature of 115° F. and this is maintained for thirty minutes [illegible]. Massage with lanolin cream is also [illegible] [illegible]. The preparation used consists of

Lanolin	2 parts
Lanolin oil	2 parts
Arachis oil	4 parts
Water	6 parts
Glycerin	1 part

A very [illegible] moisture cream is also added in a proportion of [illegible].

The lanolin massage [illegible] is carried out by the patient himself [illegible] during [illegible] discharge (Wakeley, 1942).

[illegible]

It pays well to [illegible] [illegible] three [illegible] of the methods recommended [illegible] are equally [illegible] give good results [illegible] *which are ready* [illegible] adaptable in the extreme [illegible] I would be [illegible] recommend that [illegible] should adopt [illegible] specially equipped Burns Unit [illegible] Hospital Burns Unit [illegible] and embody an [illegible] carried out [illegible] cooking in this Unit.

As the system [illegible] greater importance [illegible] only application [illegible] sterile dressing and [illegible] general condition [illegible]

Immediate Shock

Immediate shock [illegible] other injury. It is generally [illegible] unexpectedly and [illegible] absent [illegible] importance and passes off with the usual treatment [illegible] mouth reassurance and morphia for pain.

Secondary Burns Shock

As the area of a burn is of greater significance [illegible] production of burns shock an estimate of the area [illegible] is first made. In the adult if over 15 per cent [illegible] secondary shock will almost certainly develop within [illegible] burning. This tends to be increased if [illegible] is transported a distance or gets cold. All these points [illegible] on treatment in time of war when the patient may [illegible] extremes in order to reach safety, or else is [illegible] rapidly [illegible] evacuated. Under these conditions shock of a more [illegible] for the extent of the burn should be anticipated and [illegible] accordingly. If at all possible, before a patient is evacuated [illegible] sent long distances to hospital, an intravenous plasma drip [illegible] and maintained during the journey, although the patient [illegible] time show signs of secondary shock. On arrival in [illegible] facilities for adequate treatment exist, the degree of shock [illegible] of developing burns shock are

(a) Patient unusually quiet, looks anxious
(b) Slight cyanosis
(c) Coldness of extremities
(d) Falling blood pressure
(e) Rapid thin pulse
(f) Mylic signs of air hunger

If possible a haematocrit reading is obtained. H[illegible] for the adult male and female are taken as 47 and 45 and the corresponding blood volume as [illegible] and 5000 c.c. respectively. Alternatively [illegible] on the basal [illegible] the haemoglobin estimation. In burns shock the [illegible] will be raised and there will be haemoconcentration. It must [illegible] emphasized that [illegible] readings are necessary in both methods [illegible] intelligent regulation [illegible] can be carried out. If the figures [illegible] rise the rate of [illegible] must be increased and maintained until they fall to normal. [illegible] quantities of plasma may be necessary but in this is achieved.

[illegible] found by experience that if a patient needs infusion at all he [illegible] for twenty four hours and consequently the drip should not be [illegible] before that time. Too early cessation of the infusion by guess [illegible] leads to circulatory collapse and the need for what Ogilvie (1944) called [illegible] situation which should never be allowed to develop. In [illegible] this can be done by giving whole blood as well as plasma [illegible] the plan suggested by Edwards (1948). Although we may not [illegible] know the bench is abundant synthetic antimalarics that [illegible] prevent that critical period of "anoxaemia" which [illegible] the last two or three days. Much [illegible] nothing is known about [illegible] whole blood transfusions may be one [illegible] is [illegible] efforts.

[illegible] infusion and anesthesia the use of a Guest needle [illegible] is very valuable. By means of this it is seldom necessary to [illegible] If this proves to be absolutely necessary the [illegible] the risk should not be used but a vein in the arm [illegible]

[illegible] must be given in quantity and the loss of [illegible] should be replaced by the addition of sodium [illegible] In recent years many call for the use of [illegible]

[illegible] should be transferred and the tissues and the bladder [illegible] and [illegible]

[illegible] grafting is to be undertaken in the same [illegible] very carefully and the heavy gauze dressing [illegible] When burns are under the [illegible] of a skilled [illegible] and [illegible] should be [illegible] a large dose for this purpose. Pain should [illegible] the use of other drugs not affect the mind

capacity should only be administered to poor risks by those with considerable experience.

Local Treatment.—Once the haematocrit or haemoglobin has been stabilized around the normal figures for five to six hours the dressing of the burns may be undertaken. Under the strictest aseptic conditions as for any major surgical procedure the areas are *gently* cleaned with 1 per cent. cetavlon and dried.

First degree burns.—These show only erythema and will heal within a week with desquamation of the superficial layers of the epidermis. They are best treated by being left open or where necessary a purely protective covering of soft material may be applied.

Second degree burns.—These show blistering of the skin with loss of part or the whole of the epidermis. Some elements hair and sweat glands remain and from these regeneration will occur. All that is necessary is to prevent secondary infection restore function and prevent scarring and regeneration will occur from these skin elements in three to four weeks depending upon the depth of the skin destroyed. These requirements are best supplied by the application of penicillin cream (10,000 units/gramme in a lanolin wax base) spread well over the edges of the burn and the dressings then carefully applied in the manner previously described—a most important factor in the prevention of sepsis. For the comfort of the patient the dressing can be changed after fomentation this burn as always only under the strictest aseptic routine. As Keith (1944) says beware of the infinite mouths and weeping eyes and noses of small children. Sepsis and rough dressings can destroy reliable remnants of skin and convert partial into whole skin loss with its far more difficult problems of treatment.

Third degree burns.—These show loss of all skin elements with or without destruction of deeper tissues. They can heal only by marginal repair unless treated by skin grafting. Any area over 1 cm. in diameter will take such long time to heal by marginal repair that it should be skin grafted. The best position in the treatment of an apparent third degree burn is to decide over-all the whole depth of the burned skin is actually dead. For this the patient is put under the size under recently but is left and the planned central sloughing of dead tissue is left to the treatment of choice is excision and immediate skin grafting. There is no reason whatever in delaying the most speedy detachment and removal of the necrotic tissue causes debilitating. Neither is this early skin grafting the result of the long hospital stay and frequent dressings. Why wait when it is certain from the first that a graft will have to be applied in the future and possibly in a time when opportunity has been lost through the patient. In the treatment of widespread burns the best immediate skin grafting is especially indicated because the problems of sepsis and hospitalization is particularly crippling.

If [illegible] the [illegible] extent and general [illegible]

[illegible] immediate grafting is not possible [illegible] and [illegible] itself in partial skin loss [illegible] applied and left in place for sixteen days according to convention [illegible] the patient [illegible] general condition. When the dressing is removed from the extremity [illegible] will be found in differentiate the doubtful areas of partial and whole skin loss and if the dressing, a third one is made whether or not the doubtfuls can be excised and the area grafted at once. If by reason of multiple separation of the slough or because of infection this is not possible then we arrive at a point [illegible] multitude of treatments give very similar results. Whether it be by [illegible] saline baths, saline compresses, sodium hypochlorite, pyruvic acid, papain or penicillin, the sole object must be to get the area in suitable condition for the application of skin cover at the earliest possible moment. Many of these [illegible] so grafted may be unsightly but that is a minor consideration when compared with the preservation of function and at a later date the patient may [illegible] undertake the replacement of unsightly plus skin grafts by full thickness [illegible] at his leisure and under the best conditions.

Bacterial sepsis, hemorrhage, diet.—Careful bacteriological control is essential at this stage and the blood picture must be frequently considered. Blood transfusions will usually be necessary before grafting to make good the loss. If hemoglobin is between 70 and 80 per cent it will be materially less and [illegible] diet with high protein, high calorie, low fat and high vitamin content must be prescribed.

Special areas and contractures.—Hands. Fingers must always be treated separately to prevent webbing. Skin cover must be provided as early as possible and even in the presence of mild infection it is possible to obtain the [illegible] of grafting. Immobilization must be in the position of function—slight dorsiflexion of the wrist, 60 degrees flexion at the metacarpophalangeal joints, 45 degrees flexion at the interphalangeal joints and thumb in opposition. It has been found that after immobilization in this position for [illegible] as long as healing is then complete, function returns fully even with no physiotherapy. Hands should yield the most gratifying results if they can be treated by excision and immediate grafting, in which kind [illegible] found.

Face and perineum.—Because of the orifices of the ears and perineum it is virtually impossible to bandage these areas in such a way as to exclude infection and obviously a compromise must be reached. Fortunately the face and head relatively rapidly and these areas would seem ideal for treatment by the open method and a penicillin spray or powder.

Scalp.—Third degree burns of the scalp deserve special mention inasmuch as the death of the pericranium results in death of the outer table of the skull. Preliminary treatment differs in no way from that of other areas. When grafting is to be undertaken either immediately or when the slough can be excised, it is necessary to remove the dead outer table of the skull. This is done by making criss-cross cuts into it with an electric bone saw and removing the intervening pieces. The graft can then be applied direct to the viable marrow.

[illegible]

[illegible]

Very large [illegible] In some cases [illegible] recently [illegible] learned [illegible] this [illegible] [illegible] the [illegible] [illegible] rolling, [illegible] [illegible] the [illegible] [illegible] [illegible]

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PUNCHDRUNKENNESS AND ITS DIFFERENTIAL DIAGNOSIS AS OBSERVED IN NAVAL MEDICINE

BY

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Whilst engaged in neuropsychiatric duties in the Royal Navy and Royal Canadian Naval Medical Services, the writer examined a small but interesting series of boxers who exhibited a manifold symptoms. Several of these patients appeared to be suffering from symptoms which could be attributed directly to head punishment which had been sustained in the ring, and a diagnosis of mild or the encephalopathy of punchdrunk type could be made. Still other cases were examined wherein the patients displayed symptomatology resembling punchdrunkenness, yet the final diagnosis had to be deferred or else substituted following assessment of the entire clinical picture which presents a fresh problem presented. The latter group of cases provided a challenge from the viewpoint of differential diagnosis.

Some of the patients voluntarily reported to sick bay seeking relief from certain complaints, but infrequently, however, they were referred directly to sick bay or else by exasperated executive officers who felt that their [illegible] [illegible] through these "slightly-off-balance" [illegible]

[illegible] Maryland and [illegible] [illegible] Medical [illegible] [illegible] [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] remarkable happy [illegible] the fisherman and He [illegible] through the [illegible] and him [illegible] Church [illegible] appointed [illegible] Reli[illegible] I made [illegible] (certi[illegible] [illegible] Thus [illegible]

[illegible] Fire [illegible]

What [illegible] man

Do [illegible] [illegible]

[illegible] normal [illegible] [illegible]

What [illegible]

I told him [illegible]

He said [illegible]

Yes

He then asked [illegible] I [illegible] I [illegible] remember [illegible]

I [illegible]

[illegible]

Discussion

Headache [illegible] unsteadiness [illegible] glassy oval bowl [illegible] [illegible] -sonous report of past [illegible] [illegible] of [illegible] described [illegible] was established [illegible] diagnosis [illegible] violent [illegible] the element of mental [illegible] which the [illegible] suspended so quickly [illegible] that one could [illegible] as hysterical in [illegible] punchdrunk [illegible] easily display [illegible] (delusion [illegible] dullness may be [illegible] [illegible]

Case II—The [illegible] Samuel 22 years of [illegible] [illegible] March 1[illegible] Occupation [illegible] headaches [illegible] was partially deaf [illegible] [illegible] expressed [illegible] [illegible] Black [illegible] and after hoping.

On examination of the [illegible] impressed by his [illegible] but know [illegible] was the King. [illegible] He was a [illegible] ears were slightly cauliflowered. No [illegible] [illegible] hearing was normal by conversation [illegible] He had a [illegible] tremor of the fingers. Ophthalmoscopic [illegible] examination was [illegible] light swaying [illegible] noting his Roentgen [illegible]

Two days following admission to hospital his [illegible] improvement. Simple mental calculations were [illegible] general knowledge questions were more [illegible] answered. [illegible] on admission to the hospital [illegible] remember a conversation and [illegible] nothing about the orders—will have [illegible] sometimes gives [illegible] (bawling [illegible]) [illegible]

He stared about [illegible] with unremitting [illegible] [illegible] [illegible]

[illegible] lost [illegible] the [illegible] and on [illegible] He de[illegible] of [illegible] patient [illegible] which was [illegible] he stated [illegible] worked [illegible] averaged 58.0 [illegible] bouts of [illegible] and [illegible] He [illegible] [illegible] 71 [illegible] difficulty [illegible] He [illegible] had [illegible] separation.

On examination [illegible] gross flickering [illegible] eyes with [illegible] motor tests [illegible] He appeared [illegible] at 100. He [illegible]

Skin grafts [illegible] started at [illegible] had a partially [illegible] were [illegible] The [illegible] funds normal [illegible] The chest [illegible] occipital area [illegible] was administered [illegible]

[illegible]

The [illegible] signs that [illegible] He [illegible] the [illegible] appeared [illegible] in his [illegible] weakness. He [illegible] in his [illegible] suffering from [illegible] He [illegible] simple [illegible] at [illegible] attributed [illegible] examined in April 1941 [illegible] RCNVR [illegible] change was apparent [illegible] premature [illegible] 1943.

Mental [illegible] was suspected [illegible]

Case II.—The [illegible] Patrolman in the Naval [illegible] was reported that the patient was unstable in civil [illegible] required [illegible]

[illegible]

[illegible] He had [illegible] from the [illegible] is described [illegible] from the [illegible] My limbs [illegible] I have pain in my [illegible] pulling feeling—no [illegible] he had left that [illegible] the pain [illegible] issued whilst [illegible]

[illegible] Apparently [illegible] XIII [illegible] Dismissed [illegible] were post [illegible] usual husky [illegible] In the memory [illegible] and [illegible] only one [illegible] more specific tests for [illegible] the learning [illegible]

Discussion

[illegible] the patients [illegible] psychopathic [illegible] type for [illegible] was made. Appropriate [illegible] suggestion [illegible] manifest [illegible]

[illegible] reasonably [illegible] author [illegible] There is [illegible] to the Clinic for [illegible] primary [illegible] only a history of [illegible] human was [illegible] of [illegible] One [illegible] problem of making [illegible] organic [illegible] personally responsible for [illegible] disorder

[illegible]

[illegible] different diagnoses [illegible] presented [illegible] this [illegible] [illegible] [illegible]

[illegible]

[illegible] Marchand [illegible] exclusion and [illegible] a positive [illegible] from [illegible] the punch drunk may [illegible]

[illegible] equilibrium. [illegible] and [illegible] measures. In assessing the patient [illegible] differential [illegible] and short lived [illegible] Symptomatic [illegible] equipment a [illegible] bubbled [illegible] use [illegible] radiographic [illegible]

[illegible] would carcinous [illegible] through the sub [illegible] gross phthal [illegible] largest gaions [illegible] shall pay and to [illegible] was seen. The [illegible] possible

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] with cuplike [illegible] neoplasm

[illegible] patients in which a [illegible] boxing was elicited [illegible] neurology [illegible] be ascribed to [illegible] of the patients [illegible] the diagnoses in [illegible]

[illegible] thank the Medical [illegible] Council Royal Naval and [illegible] Naval Services for [illegible] utilize relevant medical [illegible]

[illegible] to the nursing [illegible] Sick Berth staffs of the Royal [illegible] Hospital Kingston [illegible] and the Royal Canadian Naval [illegible] Canada for their [illegible] support in the investigation [illegible] of the above group of patients

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SURGEON GENERAL JAMES PIERCE, R N

BY

DAVID STEWART

THE volumes of the JOURNAL OF THE ROYAL NAVAL MEDICAL JOURNAL reveal that the Medical Branch of the Navy remembers with pride those of its members who have risen to eminence and distinction Lord Blane Richardson and many others have been commemorated in the pages of this Journal with biographical articles indeed so high have some of them been esteemed that they have been honoured in this way on more than one occasion But one name is conspicuous by its absence that of James Pierce Surgeon General of the Navy in the reigns of Charles II and James II and the first head of the Royal Naval Medical Service He has been entirely forgotten nevertheless

[illegible] man who [illegible] [illegible] officers who [illegible] [illegible] appear [illegible] [illegible] Hudson in most intimate [illegible]

The first recorded connexion [illegible] 20th May 1658 when Edward Mon[illegible] at Sea had him appointed Surgeon [illegible] He served in this ship on this [illegible] Montague on the expedition in the Sound

The next we heard of Pierce is in January 1660 when he was [illegible] London and was on intimate acquaintance at Samuel Pepys On the [illegible] that month the Diarist records that he took his wife to Pierce's house and that on the 26th of the same month he had a dinner party at his own house where all the guests except Mr and Mrs Pierce were near relatives Their close friendship is further shown by the fact that when Pepys proposed to take a trip to Cambridge Pierce offered to accompany him [2] is he wished to join Eyre's regiment to which he had recently been appointed Surgeon [3]

The friendship of Pepys and Pierce continued during the long period of their official employment and this is not surprising for they had much in common They came from the middle class of society They both began their careers as Commonwealth men who after the Restoration served Charles II with the greatest integrity and zeal So loyal did they become to the House of Stuart that on the death of Charles they continued to give the same loyal service to his deplorable brother James Unlike many of higher rank they did not desert him in the hour of adversity and their official careers ended after his never to be regretted departure

The next activity of Pierce on record is that he was once again serving in the *Naseby* as the Surgeon of that ship On this occasion Pepys was also aboard as secretary to their common patron Montague Pierce joined the vessel for the first time on the 3rd April 1660 [4] and a few days later he nearly lost his life when coming alongside in a tough sea his boat was almost capsized and he only saved himself by catching hold of a rope that was hanging from the ship [5]

The *Naseby* was the Flagship of the Fleet that went to Holland to bring Charles back to England both Pierce and Pepys accompanied the Fleet to the Netherlands

The next few years of Pierce's life were uneventful He lived in a house in St Margaret's Churchyard [6] and was closely connected with the Court where he held the appointment of Surgeon to the Duke of York

From what we can gather from Pepys he appears to have been comfortably off financially for he had an attractive wife who liked a bit of amusement and this must have cost him a good deal of money He probably found most of his patients among the court clique and would therefore be able to charge higher fees than the average surgeon of the period could demand One is led to this conclusion from the fact that he was extremely well informed on court

[illegible] and Lights shed upon [illegible] much of the more [illegible] [illegible] we find in the Diary

During this period Pierce collected at least one gift that is [illegible] [illegible] when he bought his position of Groom in the Ordinary [illegible] Chamber. He purchased it for £50 and he believed that he had [illegible] [illegible] not less than £500 [7]

However inconspicuous his life may have been at this time, he must have impressed those in authority with his ability because when it became obvious that war with the Dutch was inevitable he was appointed Surgeon General of the Fleet by a warrant of the Duke of York High Admiral of England. The warrant reads as follows

> The Duke of York to the Principal Officers of the Navy
>
> Whereas I judge it very necessary that some honest able and experienced person be appointed Chirurgeon General of His Majesty's Fleet by Charge and Commission for His Majesty's service in the narrow seas the better provided for relief and relief of such sick and wounded men as shall happen therein. I have therefore thought fit to appoint James Pierce one of my chirurgeons in ordinary to be Chirurgeon General of His Majesty's Fleet. These are therefore to will and require you forthwith to cause the said James Pierce to be entered Chirurgeon General of His Majesty's Fleet according to [illegible] and that [illegible] in proper and have been issued [illegible] Chirurgeon General of the Fleet [illegible] for that service and for doing these shall be your warrant [8]

A little later John Knight sergeant surgeon to the King was given a similar appointment as Surgeon General of the Army. It is interesting to compare the terms of appointment. These two officers, as they share the difference in status of the heads of the two medical services. Knight was appointed by commission from the King, while Pierce merely held a warrant from the Lord High Admiral. The former held his office during the King's pleasure, while the latter's appointment was only for so long as the Fleet was on active service. The head of the Army Surgical Department was responsible for the supervision accommodation and the surgical attendance of all sick and wounded soldiers in England and Wales. He was authorized to examine and appoint all army surgeons and it was his responsibility to supply all surgical equipment and drugs for the army. The Surgeon General of the navy was only responsible for the care of the sick and wounded so long as they were in service. Once they had been landed their care and accommodation became the charge of the Commissioners of the Sick and Wounded who like himself only held office during the period of hostilities. The examination and appointment of naval surgeons was the duty of the Master and Wardens of the Company of Barber Surgeons. Each naval surgeon was responsible for providing his own drugs and equipment, these were examined by the authorities and Pierce had nothing to do with this. From all this it will be seen that the Surgeon General of the Army was much more formidably placed than his opposite number in the navy, both as to his powers and his security of tenure of office.

The date on which Pierce joined the Fleet is uncertain but by the end of March 1665 he was aboard the *Royal Charles* when he was in communication

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] Dutch [illegible] no money [illegible] fleet [illegible] This [illegible] disaster [illegible] of the King [illegible] Pierce [illegible] It had also [illegible] for Pierce [illegible] authorities decided [illegible] reason why they should continue to pay Pierce although he [illegible] the appointment of Surgeon General. He therefore applied to the Duke of York for same and for his services. He evidently created a good impression. Mr. Pepys said that "The whole company did show most particular kindness" to Mr. Pierce everybody striving for him and the Duke of York [illegible] likely to be a very great man. But the Duke being out of [illegible] little he did however manage to get him appointed surgeon of his troop of Life Guards [16] which assisted Pierce financially to the extent of his shilling a day. This is [illegible] must have been a help to him [illegible] period. He had lost the greater part of his capital to Vinar, the Dutch merchant, who was in boy water financially and he was having difficulty in getting it back [17].

There were many romances and goings between the Pierce and Pepys families during 1667. Pierce had a young daughter and this year she was Pepys' valentine. Samuel was more pleased with her than he had been with her mother the previous year and this was because the customary present to her would cost less than one to a grown woman. On one occasion during this year Pepys gave a dinner party which went off to his own entire satisfaction. He had all his silver plate on view and he thought he was a very fine fellow indeed! He was later at a dinner party at the Pierces' but he was far from satisfied with it and said "It was the most poor dinner that made me sick." In the following year he again complains of the inferior quality of the food provided at the Pierce house. But this year 1668 was of more importance from the fact that Mrs. Pepys demanded [illegible] Samuel in regard to [illegible] friendships with Mrs. Pierce and her friend Mrs. Knapp. After an [illegible] she compelled him to promise that he would have nothing more to do with them. This promise was reinforced on numerous occasions by further [illegible] and little more of importance is to be gleaned from the Diary about the part in life of the Pierces.

For the remainder of our history of the Surgeon General we shall have to [illegible] upon official documents which although possibly of more [illegible]

[illegible] Esq.

During 1698 [illegible] Peters's salary is [illegible] and the King [illegible] Commissioners [illegible] and I think he must [illegible] the Navy Board [illegible] in order to enrol the Board [illegible] petitioners [illegible] Peters should [illegible] stones to explain [illegible] the Navy. Incidentally [illegible] was presumably Peters [illegible] shows clearly what [illegible]

> I suppose [illegible] salary allowed [illegible] left this [illegible] and [illegible] and value [illegible] of an Hull [illegible]
>
> I have had [illegible] surgeon [illegible] right [illegible] proposal [illegible] sick [illegible] the [illegible] and experience [illegible] large [illegible] [illegible] 1 [illegible] x. [20]

[illegible] allowed and the King [illegible] the Duke of York [illegible] the Navy Commissioners [illegible] would be entitled to a salary of £100 [illegible]

He had [illegible] £100 and then [illegible] But the [illegible] even in times of peace [illegible] was entitled [illegible]

It may appear [illegible] very small sum. Several [illegible] professional status of their men. Thus [illegible] offices in question were in place [illegible] and took up very little of the time of their holders. After his death [illegible] as Surgeon General. Peters was urged to the Duke of York [illegible]

[illegible] 109 per [illegible] and [illegible] [illegible] how many [illegible] this office [illegible] at least 250 [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] little doubt that he put [illegible] If he [illegible] there would have been [illegible] the hunter [illegible] opposed to the Duke of [illegible] with [illegible] the opportunity of making the Prince throughout [illegible] subordinate. There were [illegible] complaints about the treatment of the seamen after their return under the care of the Commissioners of Sick and Wounded but there were few or any doubts about their treatment while they were at sea. Mistakes of course did occur; they must even in the best organized service. There was the unfortunate case of H.M.S. *Crown*, which had been omitted from the Surgeon General's list and therefore did not get its share of medical comforts. When Pierce's attention was drawn to this omission by the Captain of the ship he promptly issued instructions that the purser of the *Crown* should advance money to the surgeon so that he could purchase what was required. He also promised the purser that the money would be refunded to him [27].

This incident shows that the Surgeon General of the Fleet was no mere puppet of little importance. An officer who had powers to authorize a Captain of one of His Majesty's ships to spend money was a person of very real significance in the seventeenth century.

An example of the esteem in which Surgeon General Pierce was held is shown by the fact that Captain Narbrough—mentioned above—named a depression in the North Sea (in latitude 55° 58' and in the East of the meridian of Flamborough Head) 20 leagues "Pierces Hole after Mr James Pierce my very good friend Chirurgion to H.R.H.'s body" [28].

Anthrish in the album of these Dutch War Papers says that this depression must be what is now called Sole Pit. Being a landsman I know nothing of these things but it does appear to me to be a pity that the name Pierces Hole has not been retained. What a memorial it would have been to a great naval medical officer!

I think it can be assumed that Pierce served in the *Prince* during the whole of the 1672 campaign and he was certainly aboard her as late as the 17th of September when she returned to the Nore after some operations had ended for the year [29]. He probably left her at about this time because the next mention of him is at Newmarket on the 25th of October. He was in attendance on the King and the Duke of York who had gone there for the races. But it is no mere joy ride for Pierce even here he is dealing with problems of naval medical administration and was writing to Pepys about the supply of medical stores for the ships that had been detailed for the winter guard [30].

During that winter he enquired into the subject of the supply of drugs for the navy. As has been said the system in operation was for each surgeon to provide his own medicines and to get them from whichever apothecary he preferred. These medicines should have been inspected to see that they were satisfactory in quality but this obligation was frequently evaded and there is little doubt that the unfortunate seaman frequently was being treated with drugs of inferior quality. This was an old scandal and Pierce in co-operation with Knight attempted to reform it by suggesting that surgeons should

be compelled to obtain their drugs from a small number of selected reputable apothecaries so that it would be known that they had obtained them from a good source [30] However despite the fact that this proposal met with the approval of a number of naval surgeons nothing came of it and the bad old system continued in operation It was not until a later date that the problem was solved by handing over the right of supplying drugs for the navy to the Society of Apothecaries

The Duke of York was a Roman Catholic and in 1673 under the terms of the recently passed Test Act he was relieved of his command His place was taken by Prince Rupert this may explain why Pierce did not serve at sea during the remainder of the campaign Rupert was no friend of his and doubtless he felt that it would be discreet to carry on his administration of the Fleet from London He kept in touch by making frequent visits During one of these he had the misfortune of being captured by the Dutch and was carried off to Holland as a prisoner of war [31] He was not long detained in captivity and in the early part of September he was back in London actively engaged in his duties as Surgeon General [32]

The war came to an end in February 1674 and the naval medical service was put on a peace footing The Board of Commissioners was abolished and their duties were handed over to the Surgeon General [33] He now took over the care of the sick and wounded who had been put on shore and was made responsible for providing them with quarters and victuals as well as for their medical care During the years between 1678 and 1688 there are numerous entries in the Calendars of Treasury Books of sums of money being paid to Pierce for this purpose and it is obvious that this purely administrative work must have taken up a good deal of his time He had also to deal with such matters as consultations on sick seamen [33] references on widows pensions [34] and the interests of surgeons who had suffered financial loss from the early termination of the war [35] It is therefore not surprising that he asked for the services of a competent clerk to assist him in his duties [36]

In the autumn of 1680 his friend and colleague Knight the Surgeon General of the Army died The vacancy was filled by the appointment of Sackville Whittle [37] Within a few months he also died and the appointment was given to Pierce [38] For a period of eight and a half years this great man was head of the Medical Services of both Navy and Army and all the evidence goes to show that he fulfilled the duties of these two important offices to the credit of himself and the satisfaction of his employers Charles II and James II

In 1683 the English Government cut its losses and evacuated the garrison of Tangiers Pierce was responsible for disposing of the sick and wounded of the garrison after they landed in England So successfully did he carry out this task that there was not a single complaint from any of the patients [39]

During this year the King wrote to the Wardens of New College and the rest of the electors of Winchester School giving his support for the candidature of Edgar Pierce for a vacancy in that institution From this letter we learn a certain amount about Pierce at this time We are informed that God hath

[illegible] number of children [illegible] [illegible] [illegible]

[illegible] House. He had had these on loan [illegible] has s[illegible] James but [illegible] longer held that position under William III [44]. The following month he was suspected of intriguing against the [illegible] and Lewis at Portsmouth in connection with his duties as Surgeon General. The Commander in Chief of the Fleet gave orders for his house to be searched and for his letters to be [illegible] by the Governor of Portsmouth [45]. What the result of this [illegible] was we do not know but it must have been unfavourable for [illegible] a month or two later he lost his offices. The post of Surgeon General to the Army was filled by the appointment of Van Loon [46] and that of Surgeon General to the Navy was left vacant.

Sir James Pierce passed into oblivion and it has been completely forgotten. It is too much to hope that now that his memory has been restored his name will be kept in remembrance by the members of his old service of which he was such a distinguished figure.

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KEY TO ABBREVIATIONS

C J [illegible] Journals
C S P D [illegible] State Papers (Domestic)
C S P V [illegible] State Papers (Venetian)
C T B [illegible] Treasury Book

STREPTOMYCIN IN GENITO-URINARY TUBERCULOSIS

BY

Surgeon Lieutenant-Commander B WESTON R.N.

DURING the past year 6 cases of genito-urinary tuberculosis have been treated with streptomycin at R N Hospital Chatham A preliminary report was given at the G U Specialists Meeting in July 1949 but now (April 1950) that the treatment of these cases has been completed it is considered that a fuller report should be put on record especially as this series is the first to be treated by this method in the Navy At the onset it must be emphasized that this is merely a report of cases since from such a small series it is neither possible nor wise to draw any conclusions

During 1948 reports on the use of streptomycin began to appear in the medical journals but few of these mentioned its use in urinary tract infections In February Garrod (1948) in an article on the bacteriological action of streptomycin stated that it might prove to be an invaluable drug in the treatment of infection of the urinary tract since like penicillin it is secreted in the urine in high concentrations sufficient to be bactericidal particularly against gram negative organisms In the report of the Conference on Streptomycin set up by the World Health Organization held in New York in July 1948 there was no reference to the treatment of urinary tuberculosis In the report in the *British Medical Journal* of the discussion on streptomycin held by the Medical Society of London Riches (1948) was quoted to have said that in urinary tuberculosis there has been no proven cases of permanent disappearance of tubercle bacilli from the urine but a certain amount of clinical improvement has been observed as shown by increased capacity of the bladder From America more promising reports were coming and in December Lummis (1948) produced a preliminary

[illegible] and the urine kept alkaline.

[illegible] streptomycin resistant strains of tubercle bacilli [illegible] stressed by many authors. In this [illegible] have been done but in starting the treatment it [illegible] appear to have been very accurate and the [illegible] when a degree of resistance has been found [illegible] Hoffmes and Weber (1949) who reported [illegible] in the U.S.A. They state that it is well known [illegible] resistant to the tubercle bacillus. Therefore in [illegible] of laboratory resistant bacilli may not [illegible] the most important bacterial population is streptomycin [illegible]. The finding of a streptomycin resistant strain *in vitro* should not necessarily persuade [illegible] continue further therapy as long as active pathology is still present and [illegible] the patient is improving. No sensitivity tests [illegible] for devising methods of the patient's antibodies. This supported our line of treatment which had been criticized by some of our colleagues. The Streptomycin Committee meeting in Chicago reported that the tubercle bacillus tended to show resistance on the forty-fifth day of therapy and accordingly advised courses of forty-five days and not longer as had been in usual use. On the other hand Lamond (1949) reporting on results in a series of 253 cases states that the greatest percentage of conversion from positive urine to negative was seen among the patients who received the largest amount of the drug for the longest period of time. Their dose was two grammes a day in four hourly doses for 120 days.

To summarize. The decision arrived upon and agreed to at the G.U. Specialists Meeting in July 1947 for the treatment of genito urinary tuberculosis in the Navy was a three month course, 2 grammes a day for the first month and one gramme a day for the second and third months. This course could be repeated if necessary. With non-tuberculous this routine has been followed in the series under consideration. These cases were to be treated by a G.U. Specialist and the Consultant suggested that when possible they should be transferred to R.N.H. Chatham.

CASE REPORTS

Case I.—W. S. W. E.R.A. 3, aged 28. *Bilateral Renal Tuberculosis.*

Admitted to hospital July 1947. Having been invalided from the Royal Navy Hospital Bermuda. Four months previously whilst in H.M.S. *Sheffield* he had had an attack of

FIG. 1—Case I. I.V.P. 5.2.48. Shows irregularity and poor filling of the upper left and middle right calyces.

FIG. 2. Case I. I.V.P. 16.11.48. [illegible]

FIG. [illegible] Case I. I.V.P. [illegible]

FIG. 4.—*Case I. Retrograde.* 26.1.50. After stereptomycin—*see* text.

[illegible] urine. On [illegible] frequency of micturition [illegible] D. N. [illegible] kidney was palpable [illegible] he got [illegible] and [illegible] F. B. [illegible] of [illegible] H. B. [illegible] Fr. [illegible] and [illegible] the disease [illegible] D. [illegible] is [illegible] external genitalia. In M[illegible] 1946 [illegible] suggested a [illegible] He was [illegible] Rolling, Hospital [illegible] admitted [illegible] 1948. The [illegible] and [illegible] In February 1949 [illegible] He [illegible] and E. [illegible] there was [illegible] There was [illegible] single diff[illegible] On examination [illegible] emphysema of the [illegible] found in the [illegible] with [illegible] A [illegible] Bart (October [illegible] 24 h[illegible] was negative. In [illegible] 1949 full examination and tests [illegible] Dysuria is negligible [illegible] Chest only bold [illegible] of urine. Sits [illegible] and [illegible] The urine [illegible] Pyelograms (figs 3 and 4) [illegible] the upper calyces of the left [illegible] and blunting of the middle [illegible] the kidney but the small [illegible] The [illegible] nephrosis seen in the [illegible] Cystoscopy showed a small [illegible] dilated bladder but there was [illegible] Both refluxes were [illegible] Urethrograms were [illegible] and gallograms were all [illegible] All subsequent [illegible] negative.

The clinical impression [illegible] kidneys is indeed [illegible] After [illegible] hospital and [illegible] ment his general condition [illegible] and the [illegible] logical signs [illegible] psychological [illegible] evidence of healing [illegible] been found on culture [illegible]

Case II.—I. W. B. [illegible] *Bilateral [illegible] Tuberculosis*

In 1946 he had [illegible] when he had been [illegible] Chatham in January 1948 [illegible] found in his [illegible] left epididymis [illegible] pain in the back [illegible] of the twelfth thoracic [illegible] In March 1949 [illegible]

[illegible] sudden [illegible] stitution [illegible]

Case III.—A. W. C. [illegible]

A [illegible] in the [illegible] region [illegible] there the [illegible] second [illegible] the right [illegible] R.N. Hospital [illegible] as a suitable [illegible] stunse, on the [illegible] was small [illegible] hospital [illegible] cultures and [illegible] stopy was [illegible] first four weeks [illegible] tissue (chiefly [illegible] the cavity and the [illegible] dry in three weeks [illegible] week course [illegible] invalided from the Service. [illegible] admission here) [illegible] a day in [illegible]

Case IV.—B. C. D. [illegible]

Admitted [illegible] metatuition especially [illegible] general examination [illegible] on edition. Mam 24 [illegible] on only nac xcasi n [illegible] Pyelographs did [illegible] bladder—ax n mis [illegible] but there was no infiltration [illegible] sides did not give [illegible] positive. This opinion [illegible] changes.

He was given the [illegible] end of which [illegible] all negative. There [illegible]

Clinically he [illegible] cystoscopy the bladder [illegible] tuberculosis. De [illegible]

Case V.—J. B. O. A. [illegible]

Admitted 14.4.49 having [illegible] mesenteric glands. Ran [illegible] special [illegible] Except for [illegible] graphs and cystoscopy were [illegible] urine and of both ureteric specimens [illegible] all negative. [illegible] ity. In view of the reported [illegible] TB [illegible] is given the benefit of the doubt [illegible] tissue were then carried out [illegible]

[illegible] Case IV and V [illegible] early [illegible] pathographic changes were [illegible] In [illegible] following the [illegible] of streptomycin [illegible] [illegible] It is possible that streptomycin effected the [illegible] of [illegible] lesions and this prevented the development of [illegible] and [illegible] lesions.

[illegible] N. F. B. [illegible] 79 [illegible] *Tuberculosis*

[illegible] 1949 [illegible] discharge) [illegible] In July 1949 [illegible] diagnosis of [illegible] dissemination. He had [illegible] About two months [illegible] playing with [illegible] gradually [illegible] symptoms. His [illegible] [illegible] The pus from the [illegible] epithelioma [illegible] On 4/11/49 the [illegible] streptomycin was started. [illegible] right to [illegible] On [illegible] drugs. His [illegible] On 2/1/50 the [illegible] 118 [illegible] and all subsequent [illegible] were negative.

Reactions

From the beginning of its clinical use streptomycin has been made to carry every article of the widely varying reactions to streptomycin which may occur. These include loss of vestibular function causing dizziness difficulty in walking, nausea, anorexia, vomiting, stomatitis, jaundice and skin rashes.

We may have been lucky in this series but the few reactions which did occur have been slight and with the exception of Case II it was not necessary to stop or modify the course. None have had any after effects at the time of writing.

Case III had no reactions at all. Cases I, V and VI complained of slight dizziness during the second and third weeks but they were not really worried by it and not interfere with reading or their enjoyment of the hospital cinema. Three cases complained of blurring of distant vision. This was noticed when they found that they could not see so clearly ratings whose quarters are situated [illegible] the roadway from the ward. They could however at all times read the [illegible] on the clock at the other end of the ward.

The only other reaction was when on the ninth day of the course Case IV developed a generalized red rash over the face, arms, chest, abdomen, back and legs causing slight irritation. At the same time he complained of nausea and

[illegible]

[illegible]

Discussion

As was mentioned in the [illegible] from such a small series but a few [illegible]

Firstly—it has been said that many [illegible] spontaneously will rest and good food and [illegible] be given in streptomycin. This is agreed. However, [illegible] in spite of nineteen months hospital and [illegible] gradual deterioration in his general condition [illegible] and clinical, bacteriological and pyelographic [illegible] Within one year of starting streptomycin the general health [illegible] remarkable improvement, no tubercle bacilli could be found in the urine and there were pyelographic signs of resolution. [illegible] fulfilling the criteria of improvement laid down by Wells (1949): (1) Symptomatic, (2) Conversion of the urine from positive to negative, and (3) Pyelography.

Secondly—almost all reports so far published have shown that streptomycin combined with adequate surgery rapidly causes healing of tuberculous sinus. This is supported by Cases III and VI, especially in Case III who had had a discharging tuberculous sinus for seven months. There was no improvement in the state of the sinuses after three weeks of streptomycin but when surgery under streptomycin "umbrella" was followed by complete and permanent healing in three weeks.

Thirdly—the dosage and duration of treatment. This is still under consideration. Although our course has proved satisfactory there is evidence to suggest that shorter repeated courses might be better in the hope of preventing the formation of resistant strains. This was commented on earlier in the paper.

Fourthly—combination with other drugs. Since the early days of strep

tomycin [illegible] [illegible] irrigation of streptomycin and other substances has been tried [illegible] Madigan Swift and Brownlee (1947) reported in the [illegible] of streptomycin and sulphatrone. Van Cappellen (1948) and Skelkin (1947) recommended using esters of chaulmoogra oil the latter suggesting [illegible] Minogue intramuscularly three times a day. They state that the tubercle bacillus is protected by an armour-shell of wax a hydrocarbon. In order to destroy the bacillus this wax shell must be broken digested or dissolved and this can be done by chaulmoogra oil. In December 1949 the Medical Research Council published a preliminary report on the combined treatment of pulmonary tuberculosis with para-aminosalicylic acid (P.A.S.) and streptomycin. This states that the combination considerably reduces the risk of development of streptomycin resistant strains during the six months following the start of the treatment. It goes on to say that so far this is only applicable to the acute form of the disease and it remains to be seen whether the same results are obtainable in other forms of tuberculosis amenable to streptomycin therapy. Jarabs and Borthwick at the Section of Urology of the Royal Society of Medicine in March 1950 report that the development of streptomycin resistance still occurred in spite of the simultaneous administration of the two drugs. On the other hand Dahlstrom and Difs (1949) who have used the two drugs together recommend using P.A.S. for as long as there is bacilluria with the addition of fairly short courses of streptomycin. It is possible that research is now proceeding on these lines.

Fifthly—in the treatment of genito-urinary tuberculosis streptomycin must be combined with (1) sanatorium and general treatment of the patient and (2) surgical intervention if necessary at the most advantageous moment. For this reason the treatment must remain directly under the care of a urological surgeon. As Riches (1949) and others have said streptomycin must remain a hospital drug and to surgery.

Lastly—the types of case best suited to streptomycin treatment. As far as we can be judged at present these are

(1) Bilateral destructive lesions if not too far advanced. (Case I.)

(2) Very early ("subclinical") lesions without pyelographic changes. (Cases IV and V.)

(3) Discharging tuberculous sinuses e.g. scrotal or renal. (Cases III and VI.)

(4) Residual lesions in kidney ureter or bladder after nephrectomy.

Summary

A record is given of the treatment of 6 cases of genito-urinary tuberculosis. These were the first cases to be treated in this way in the Royal Navy.

The routine course of treatment is described.

With the exception of one case which is fully discussed all the cases showed marked improvement and at the time of writing all had organism urines.

No general conclusions are drawn from this small series but various observa

Case No.	Date of Diagnosis	Family History	Symptoms on Admission	Investigations	Serum Cholesterol	Other Treatment	Condition on April 1, 1951
(I) W. W. [illegible]	July 1947	None	Intermittent claudication of both calves. Frequency + D 7 8 N 2 3	[illegible] Cholesterol Diet [illegible] Cholesterol and C.I. Physiotherapy. Photo changes both legs. Prostatectomy [illegible]	12 / 42 } 126 C 14 / 71 } 99 C	Bilateral vasectomy	Negligible symptoms. No [illegible] on [illegible]. Pyelographic changes improved
(II) [illegible]	April 1946	1941 [illegible]	[illegible]	Cholesterol [illegible] Inhibitory [illegible] Photographic changes [illegible]	46 / 9 } 89 C		Indicidious back [illegible] unchanged
(III) [illegible]	[illegible] 1948	Oct. 1948 [illegible]	[illegible]	All [illegible] tests normal [illegible]	8 / 56 } [illegible]	[illegible]	Symptomatically improved
(IV) [illegible]	[illegible]		[illegible]	[illegible]	[illegible] } [illegible]		All [illegible]
(V) [illegible]	[illegible]	None	None	[illegible]	[illegible] } [illegible]		All [illegible]
(VI) [illegible]	[illegible] 1949	[illegible]	[illegible]	[illegible]	30 / 58 } 158 C	[illegible]	[illegible]

[illegible] streptomycin [illegible] and surgery

While [illegible] it is desirable that a uniform course of [illegible] By pooling all streptomycin cases in hospital [illegible] be [illegible] from which [illegible]

I should like to thank Mr [illegible] Naval Consultant in Urology for constructive advice and help [illegible] this work and in the preparation of this report to the staff of the laboratory at this hospital for their interest and much extra work and finally to Surgeon Rear Admiral K A Inglehy Mackenzie K H P for permission to publish his paper

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ON DISEASES OF THE SKIN

BY

Surgeon Lieutenant G POLLITT, R N

DISEASES of the skin form quite an appreciable part of medical practice in the Royal Navy Such conditions is seen in the tropics contact with various agents working in high temperatures and communal washing places all tend to encourage the development of skin diseases Often a medical officer has to be his own dermatologist

Dermatology is still rather a confused and confusing subject and for this reason people unconsciously avoid taking up those in interest in the subject This article is being written in the hope that it will be of some value to those medical officers who do not get a great deal of experience in skin diseases but will have to treat them from time to time

The etiology of some skin diseases is still shrouded in mystery As in the case of peptic ulceration a number of conditions have been blamed for the causation and yet there is some inherent factor responsible for the second breakdown of the tissues which has not yet been elucidated These skin diseases due to animal and vegetable parasites and to bacteria can be placed in definite groups and in many cases specific therapy is available There are

[illegible] which can be considered [illegible] congenital traumatic [illegible] plasia [illegible] conditions [illegible] placed in [illegible] groups and are rarely [illegible] Sturge-Weber syndrome or is [illegible] such forms [illegible] in the present state [illegible] to suffer.

When confronted with a [illegible] the following approach is suggested.

(1) Find out all observe the lesion [illegible] Europe.

Is the condition congenital [illegible] inflammatory [illegible]

Congenital skin diseases appear [illegible] soon after birth. A patient suffering from Ichthyosis will have [illegible] long as he remains alive. [illegible] are described as birth marks.

Neoplastic diseases of the skin [illegible] difficult [illegible] It is surprising how often an early [illegible] described [illegible] the typical situation. Conclusions often have to be reached [illegible] elimination and often a second opinion [illegible] Neoplasms of the skin are sometimes the [illegible] – [illegible] pathology as in the cases of pemphigus [illegible] Kaposi's disease.

It is often difficult to decide whether a lesion is primarily [illegible] inflammatory since the skin normally harbours pathogenic staphylococci [illegible] pityrosporon. A traumatic lesion may become secondarily infected [illegible] inflammatory lesion may become excoriated. In this case the [illegible] original appearance of the lesion may be of help.

(2) After a preliminary look at the lesion the history should [illegible] should be full and careful covering the following points.

(a) how long have the present lesions been noticed
(b) what was the original appearance and how have they progressed
(c) do they irritate in any way and if so under what circumstances
(d) is there any seasonal variation
(e) what is the opinion of the patient as to the cause of the lesion [illegible] anything known to aggravate or alleviate them
(f) was there any change in habit just before the lesions appeared [illegible] did the patient buy a new shaving brush, use a new [illegible] job or residence?
(g) was the patient under any mental stress when the lesions appeared
(h) what are the conditions under which the patient works [illegible] does he come into contact with any chemicals or [illegible] hot or enclosed spaces. Could he have come into contact [illegible] grasses or with animals. What is his present occupation
(i) how does the patient's skin react under stress [illegible] perspire unduly in hot climates
(j) is there any family history of psoriasis [illegible]

[illegible] with the patients [illegible] there [illegible] have caused a scar [illegible]

[illegible] has been given [illegible] effect

[illegible] and taken the [illegible] further physical [illegible] This need [illegible] in full but the [illegible]

[illegible] from dandruff

[illegible] the eyes

[illegible] Positive or latent physical [illegible] between [illegible]

[illegible] though not necessarily [illegible] of the [illegible] Many [illegible] themselves obvious from a consideration [illegible]

[illegible] which is notoriously difficult to diagnose [illegible] dermatitis [illegible] and the epidermo[illegible] Where the scalp and hair are affected they [illegible] and if the condition on the rest of the body [illegible] methods of treatment must be used until the [illegible] by trial and error

[illegible] ribed the treatment appropriate to the condition [illegible]

[illegible] the following empirical lines of treatment [illegible]

[illegible] the disease should be treated [illegible] reported to be suffering from a schizophrenic [illegible] trying should be avoided if possible

[illegible] psychogenic background attempts should be made [illegible] the patient

[illegible] Irritation should be minimized by local soothing applications such as [illegible] and bicarbonate of soda

[illegible] Any affected scalp and hair should be appropriately treated

[illegible] Acne rosacea [illegible] should be treated from a other but in earlier [illegible] disease [illegible] treated

[illegible] should be treated [illegible] and dry lesions should be [illegible]

[illegible] Superficial X ray therapy is of great value in the treatment [illegible] cases which fail to react to local applications X rays [illegible] and are [illegible]

[illegible] *Preparations* The Sick Bay in a small ship cannot be expected to [illegible] preparations which are advocated by dermatologists However [illegible] preparations will suffice to alleviate the acute stages of many skin [illegible] the following preparations are advocated

[illegible] – A useful and effective Scalp preparation is that recommended by [illegible]

℞ Ammoniated mercury [illegible]
Hydrargyri perchloride [illegible]
Oil of [illegible]
Oil of lavender [illegible]
Spirit methylated [illegible]
[illegible] applied [illegible]
[illegible] can be varied depending [illegible]

Where there is a considerable amount of scaling or pityriasis lesions the following ointment is of value

℞ Hydrargyri ammoniati [illegible]
Acid salicylic [illegible]
Oil cadini [illegible]
Holden's emulsifying base [illegible]
This should be rubbed into the scalp for [illegible]

(2) *Eruptive*—(*a*) *Impetigo*. Removal of crusts and application of pyocidin cream is usually effective. Gentian violet is daily painted in impetigo and hides the appearances of the lesions.

(*b*) *Sycosis barbæ*. If the lesions are secondarily infected in weeping pyocidin cream, zinc or Lassar's paste should be applied. Once the inflammatory stage has subsided Quinolor is a most useful remedy. Chronic cases may be referred for superficial X ray therapy.

(3) *General*—(*a*) *Psoriasis*. For small patches—Iodine and (B.P.) 1 per cent in 2 per cent usually removes the lesions effectively. In the case of larger patches the scales should be removed with oil and tried in preparation applied. Patients with extensive lesions should be referred in hospital or small slips.

(*b*) *Eczema*. Preparations of underylinic acid such as Eurifax (Burroughs Wellcome) are most effective for scaling type. If the condition is acute and weeping the following preparation is suggested:

℞ Hydrargyri oxide [illegible]
Lotio picis [illegible]
Unguentum [illegible]
Paraffin [illegible]
[illegible] the lesions bid.

If this proves too stinging red lotion is more soothing and effective application during the acute stage. In the convalescent stage a pyocidin cream or Lassar's paste is of value.

(*c*) *Eczema rubrum*. In this condition the skin is very inflamed and should be treated with ointment. In the weeping stage zinc and calamine is a useful preparation; the lotion should be changed daily.

(*d*) *Ichthyosis fœtalis*. This condition is described as a chronic infection and possibly a tinea. If tinea is common it is an effective Mycozol (Parke, Davis) liquid or ointment or Castellani's paint should be used.

(*e*) *Weeping eczema and scheroderma*. The preparation known as for weeping mercurial infection is most useful preparation when it is necessary to give empirical treatment in weeping eczema. Once the lesion has dried 5 per cent coal tar in Lassar's paste should be substituted.

[illegible]

[illegible]

[illegible]

1942–48 [illegible]

	Cases	[illegible]
1947	[illegible]	[illegible]
1948	[illegible]	[illegible]
1949	[illegible]	[illegible]

Last year there were some 42,000 cases notified in the United States of America while the figure for Europe was approximately [illegible] 1949 shows every sign of being an epidemic year—the recommencement [illegible]

Non-paralytic poliomyelitis is prevalent during summer months [illegible] common in the temperate zones. The disease is [illegible] adults becoming progressively rarer after the third and fourth [illegible] not unknown there. The highest incidence is in the [illegible] and only a small proportion of infected individuals [illegible] exhibit any clinical signs of the disease. Sub-epidemic [illegible] one of the important features. Immunity is acquired [illegible] is unknown and is not affected by [illegible] an epidemic experience in the area and there are [illegible] predispose to bulbar poliomyelitis is considered [illegible] conclusive. Resistance to the disease is apparently [illegible] and it has recently been suggested that [illegible] combined diphtheria and pertussis immunisation [illegible]

As is well known the contagium responsible for the disease [illegible] years ago is a filterable virus [illegible] disease [illegible] have been identified. The virus is found in the faeces, urine and [illegible] of infected persons who show no clinical signs of the suffering from clinically recognizable attack. It is so with certain other discovered [illegible] such an infected person is a [illegible] the disease. The incubation period is considered to be [illegible] varies between three days and three weeks. [illegible] infected towards the end of the incubation period [illegible] the disease. Whether it enters the body by the alimentary canal is by no means clear. Recent evidence points to the [illegible] transmission by gadfly [illegible] emphasis is placed on the human carrier [illegible]

The method of transmission of poliomyelitis is [illegible] that of typhoid. Osler's classical description of typhoid [illegible] the latter disease will be remembered [illegible] the dust of dried dejecta and the bacilli [illegible]

In this regard the methods of prevention are [illegible]

(*a*) The seasonal incidence of poliomyelitis [illegible]

(*b*) The virus has been reduced from [illegible]

(*c*) The virus has been [illegible] and [illegible] has been recovered from [illegible] and [illegible]

(*d*) It is doubtful if [illegible] chlorination

The disease begins with a febrile illness [illegible] of pains in the back and limbs and stiffness of the neck and finally the paralytic stage. The extent to which the paralysis persists depends on the amount of damage to the spinal cord. The degree of paralysis is maximum at the onset and all subsequent changes are an improvement.

The spinal form of the disease is much more common than the bulbar. In the latter the cranial nerves and respiratory centres are affected.

The quarantine period recommended in this country is twenty one days from the last exposure to a recognized case but control measures are difficult to execute and are maintained in vain. This is mainly due to the fact that the method of dissemination of the virus is uncertain and that there are such large numbers of asymptomatic carriers.

What then is the naval medical officer to do? The following points in the event of actual or suspected cases of poliomyelitis may help him to decide.

(a) Of the utmost importance is early recognition of the disease—due to mass hysteria you didn't think of it. The patient should be isolated immediately. Here should be complete rest and avoid any physical activity—this may prevent subsequent paralysis and will certainly minimize it.

(b) If possible obtain the advice of the Naval Medical Officer of Health and the Local Medical Officer of Health.

(c) Remember poliomyelitis is a notifiable disease.

(d) Isolate immediate contacts if practicable—in any case daily inspection should be carried out for the quarantine period.

(e) Naval personnel who are contacts should not be drafted until twenty one days have elapsed from the last exposure.

(f) Contact children should not be sent back to school for a similar period and should be segregated from other playfellows.

(g) All food handlers who are contacts should be given other duties until the quarantine period has elapsed.

(h) As regards naval personnel who are contacts the advice of the Local Medical Officer of Health having been obtained, each case should be judged on its merits.

(i) Strict attention should be paid to personal hygiene and a vigorous anti fly campaign instituted.

(j) Strenuous games leading to overexertion are contraindicated during the period of excessive fatigue.

(k) Swimming baths should be closed.

(l) Operations on the nose and throat and dental extractions should be postponed.

(m) Discharges from the nose and throat and the fæces of confirmed or suspected cases should be disinfected and disposed of suitably.

(n) Every effort should be made to allay anxiety and to sustain morale.

UNDERWATER RESPIRATION AND SUBMARINE ATMOSPHERES[1]

A Review of Some Recent Developments

BY[2]

Surgeon Commander F. P. ELLIS, R.N.

The normal gaseous constituents of the atmosphere may exert harmful effects on those who engage in diving and submarine operations if their relative proportions in the air breathed are allowed to vary, or if they are breathed under pressure.

The most important gases involved are shown below.

Gas	Oxygen	Carbon dioxide	Nitrogen
Variations known to cause adverse effects	(1) Oxygen lack	(1) Carbon dioxide excess in air	(1) Decompression illness — the "bends"
	(2) Oxygen excess under high pressure (oxygen poisoning)	(2) Carbon dioxide excess in oxygen (shallow water blackout)	(2) High pressure nitrogen narcosis or toxicity

NOTE.—When a mixture of gases is breathed the effect of any gas in the mixture is related to the partial pressure of the gas. It may be misleading to refer only to the percentage of a gas in a mixture which is breathed at pressures less than one atmosphere, the atmosphere absolute.

It is well known that a man in a hermetically sealed room will gradually use up the oxygen available, and eventually the carbon dioxide he exhales will accumulate in the atmosphere in increasing concentrations. If the atmospheric pressure is then increased within such a room without alteration in the relative proportions of these gases and the nitrogen in the air, the raised partial pressure of oxygen will probably ameliorate some of the ill effects of oxygen lack, but the overall effects will be worse because the partial pressure of carbon dioxide will be increased as well.

Before the advent of the German schnorchel (or British "Snort") a submerged submarine was similar to a hermetically sealed room in many respects. In the old type of submarine if effective methods for absorbing carbon dioxide and adding oxygen to the air were not available, the oxygen was gradually used

[1] A lecture given in the Physiology Department of the University of Malaya on 21st February 1950.

[2] The schnorchel is a hollow mast connecting the interior of a submerged submarine with the surface through which the crew and engines obtain their air supplies. It was used by the Germans during and adopted by the British after the war.

up and the [illegible] rammated the [illegible] The internal [illegible] greatly unless the submarine [illegible] the crew to escape after it had been [illegible] suffer towards the end of a long dive [illegible] back at the same time as attackers [illegible] but they do not wear oxygen masks or [illegible] Divers

were often aggravated by mild narcosis due to [illegible] If the interior of a submarine were flooded for any reason [illegible] pressure which [illegible] the proportional to the depth below the surface [illegible] between the sea and the interior of the submarine [illegible] divers of oxygen lack temporarily as the partial pressure [illegible] but any improvement was offset by the adverse effect [illegible] on the partial pressure of carbon dioxide

Submarine crews were provided with [illegible] that they could breathe under water when escaping and [illegible] marines which were sunk. The original [illegible] oxygen was inhaled from a breathing bag which was supplied by [illegible] and worn on the chest like an Army gas mask. The mask [illegible] with clip. The wearer then exhaled into the same bag [illegible] through a small canister containing [illegible] to absorb carbon [illegible] and prevent its return to the breathing bag. These shallow water [illegible] instruments modified for special purposes are used in the navy for many other kinds of underwater work at shallow depths. They cannot be used [illegible] greater depths because of the dangers of oxygen intoxication.

The respiratory problems of divers are similar [illegible] of submarine sailors. They also arise from circumstances which compel them to breathe the gases normally contained in the atmosphere but at abnormal concentrations and mixtures and at abnormally high pressures. Efficient equipment should ensure that carbon dioxide is removed from the respiratory [illegible] breathed again by the diver and not re-breathed by him. According to the equipment provided divers may inhale air pure oxygen various mixtures [illegible] oxygen and nitrogen or mixtures of oxygen and helium.

The use of helium in this way has been [illegible] that important constituent of the atmosphere nitrogen may be harmful under certain conditions. When a man is exposed to high pressure nitrogen is dissolved in considerable quantities in the liquids of the tissues. If the atmospheric pressure is suddenly reduced when a diver is working at great depth [illegible] will be if he ascends rapidly to the surface, the nitrogen is [illegible] released in the tissues as gas bubbles. These bubbles may form around certain joints and in the spinal cord and give rise to decompression illness, with distressingly painful cramps (known as the bends) collapse, paralysis or death. Until helium during became possible this danger made it essential for divers either to ascend very slowly when they had been working at depth or to which cut down their working time enormously or descend more rapidly and

enter a submerged compr[illegible] humbr[illegible] [illegible] for them to be gradually decompressed in [illegible] recompressed in a surface compr[illegible] rapidly before the nitrogen bubbles had [illegible] to the tissues and then to be decompressed slowly.

In addition breathing air at pressure[illegible] spheres results in increasing mental confusion [illegible] ought to be due to nitrogen narcosis (Behnke [illegible] 1939). [illegible] pressure illness and nitrogen narcosis [illegible] oxygen mixtures are replaced by helium-oxygen mixtures [illegible] helium is less tissue soluble than nitrogen (Behnke [illegible] 1939).

Thus the known physiological hazards under [illegible] last year could be summarized as follows. Under normal conditions in a submerged submarine if an purification equipment was not available the crew would suffer towards the end of a long dive since from breathing a much lower oxygen content and heavily contaminated with carbon dioxide at pressures which did not differ greatly from the surface atmospheric pressure and when the submarine surfaced many would experience the "off" effects or the "hangover" effects of breathing fresh air after breathing air rich in carbon dioxide. If on the other hand the interior of a submerged submarine were flooded and directly in contact with the sea outside the partial pressures of oxygen and carbon dioxide would be raised suddenly in proportion to the depth below the surface, reducing the effects due to oxygen lack but increasing the essential carbon dioxide poisoning. Furthermore if the crew had their oxygen supplied to them at depths greater than 30 feet under these conditions some of them might suffer from the acute symptoms of high pressure oxygen poisoning before very long and others would succumb to the "off" effects of breathing pure oxygen after air rich in carbon dioxide.

The most serious incident to skilled diver diners using oxygen breathing sets was oxygen intoxication if they were operating at too great a depth[1] while deep divers using the traditional helmet and air diving equipment had to contend with flooding of mainly due to nitrogen narcosis at great depths and "bends" or decompression illness if they ascended too quickly to the surface either by accident or by intention.

The features of oxygen lack and decompression illness and the effects of breathing high tensions of carbon dioxide in air are described adequately in the standard textbooks to which reference may refer. I propose therefore to describe the greater part of my time to two clearly defined syndromes which may be less familiar to you and concerning which the advice of the physiologist was sought to ensure the safety and efficiency of operational divers during the war. The first of these is oxygen intoxication.

[1] The pressure to which a diver is exposed as he descends or the water increases by 1 atmosphere absolute (14·696 lb per square inch) for every 33 feet in the depth of a dive in sea water (34 feet in fresh water).

Oxygen [illegible]

The [illegible] was discovered by Paul Bert (1878). He found that when various [illegible] animals are exposed to partial pressure of oxygen exceeding 3 [illegible] 4 atmospheres their body temperatures fall, consumption of oxygen and production [illegible] carbon dioxide is diminished, they exhibit tonic convulsions and die. Bert also showed that other forms of life—plants, infusoria and bacteria—are killed in the same way. The importance of this observation to divers is obvious, but oxygen intoxication is not usually encountered provided the oxygen is mixed in suitable proportions with nitrogen or helium. Air divers suffer from nitrogen narcosis at shallower depths (100-300 feet) than those in which they are likely to experience oxygen convulsions (420 feet).

In 1935 American workers Behnke, Johnson, Poppen and Motley (1936) concluded from experiments carried out in a pressure chamber for the United States Navy. Healthy men between the ages of 27 and 40 can breathe pure oxygen with comparative safety as follows: four hours at 1 atmosphere, three hours at 2 atmospheres, two hours at 3 atmospheres. Only one of their subjects were exposed to 4 atmospheres and these experiments were terminated by convulsive and syncopal attacks after 44 and 43 minutes respectively. The pre-war regulations in the Royal Navy limited pure oxygen diving to pressures below 2 atmospheres absolute (depths of less than 33 feet).

The increasing wartime use of oxygen diving equipment for operational purposes made it necessary to determine precisely the safe depths at which men could work, to find out if different individuals could withstand the effects of oxygen intoxication at greater pressures than others, and if there were any way of identifying such men, and to discover if resistance to high pressure oxygen could be increased by the use of drugs, training or other means, so as to augment the range of action, increase the safety of the operatives and enable the precise planning of operations.

Occurrence.—Human experiments to investigate these matters were carried out by Surgeon Lieutenant K. W. Donald, Royal Navy, Professor J. B. S. Haldane and divers of the Admiralty Experimental Diving Unit from 1942 onwards (Donald, 1944 and 1947). They revealed a remarkable variability in the human ability to withstand the effects of high pressure oxygen, not only between different individuals but also in the same individual from day to day. Thus for 36 men breathing oxygen in a dry compression chamber at a pressure equivalent to a depth of 50 feet (3.7 ata abs.) the exposure time to the "end point" where symptoms of oxygen intoxication occurred varied from 6 to 96 minutes (5 had convulsions). One man, who was an experienced diver, dived to a pressure 3.12 atmospheres twice a week for three months and his tolerance times varied between 7 and 148 minutes.

When 100 different subjects breathed oxygen under water in a tank within a pressure chamber at a pressure equivalent to a depth of 50 feet (2.5 ata abs.) for thirty minutes, 26 convulsed, 24 had other symptoms and 50 had no symptoms. Further experiments showed that breathing oxygen under water

[illegible] a chamber containing only air reduced the tolerance time but high pressure oxygen by 2 to 3 times for different individuals. In the underwater experiments the men were subjected to an additional 3 feet of water pressure and were breathing rather purer oxygen. But these factors appear inadequate to account for such enormous differences in tolerances and no satisfactory explanation has yet been given.

The maximum safe depth under water at rest was then determined by experiment of two hours' maximum duration on groups of divers. Two out of 20 men were affected at 50 feet (pressure of less than 2 atmospheres) and at 25 feet 28 men all were affected without convulsions. It can be seen why it was that many operational divers were able to get away with dives to several times the depths considered safe by the scientists and sometimes considered that the restrictions placed by them seemed unduly conservative. When divers were working hard under water the threshold depth was further reduced and 5 out of 18 men experienced symptoms at a pressure equivalent to a depth of 25 feet.

Thus the problem bristled with difficulties. It appeared probable that when the objective was attained, the risk of oxygen poisoning would be accepted operationally together with the many other dangers to which those who engage in underwater warfare are exposed, but all possibilities of reducing the risks involved were explored in the laboratory by Dr. G. L. Brown and the Physiology Section of the National Institute for Medical Research at Hampstead London. The clinical picture was clarified by observations on human volunteers, the effects of high pressure oxygen on acetylcholine formation and brain metabolism were investigated to discover the nature of the poisonous effect, and the action was examined of various substances likely to retard the rate of onset of oxygen poisoning in man, in animals and in minced tissue slices.

The pressure chamber at the Lister Institute presented to Dr. Leding, Moral many years previously for the high pressure experiments of Professor J. S. Haldane, Professor A. V. Bayliss and Commander G. C. C. Damant, Royal Navy, was transferred to Hampstead and plans were prepared for continuing investigations on a longer term basis in a new pressure chamber to be installed at the Royal Naval Physiological Laboratory, Alverstoke, Hampshire.

Symptoms and Signs.—The clinical features of oxygen intoxication as it occurred in men breathing oxygen from a respirator in the dry pressure chamber at Hampstead were described by Brown, Dawson, Macintosh and Williams (1944) as follows:

> The organism is quickly affected by the sudden rise of blood oxygen tension and responds by attempts at adaptation. Blood pressure is reset at a higher level and skin circulation is least of the face decreases. This condition is maintained until the crisis approaches when the blood pressure rises a little higher. The herald of poisoning is lip twitching and also perhaps nausea, oppression in the chest, sweating and restlessness. The syndrome of a restless pallid subject looking a little anxious is easily

[illegible] the [illegible] subject then [illegible] controlled [illegible] strikes of [illegible] body. [illegible] movements [illegible] rapidly [illegible] subject [illegible] convulsions possibly with [illegible] first [illegible]. We do not wish to suggest that the [illegible] the same [illegible] and [illegible] evidence from [illegible] the terminal symptoms may still vary in the same [illegible] to time. It is a [illegible] that the [illegible] repeatedly under standardized conditions showed remarkable [illegible] in their terminal symptoms.

The [illegible] that the cortex is changed very little by oxygen poisoning. [illegible] is the most constant finding. If the subject [illegible] there may be overtaking of them in the record but the [illegible] closely to be of real value. The pattern of the [illegible] and after the fit resembles that seen in [illegible].

[illegible] change of cortical activity suggested by [illegible] experiments on the [illegible] poisoning at a subcortical level. The [illegible] of the [illegible] tapping suggests that the site of the [illegible] is somewhere in the [illegible] muscle complex. On the other [illegible] in which [illegible] in some persons indicates that the [illegible] is being [illegible]. The progressive increase of fast [illegible] finally [illegible] this supposition. The [illegible] that the poisoning proceeds at all levels of the [illegible] which equal time. Which level [illegible] so [illegible] is [illegible] controllable [illegible] by [illegible] property of the individuals.

The [illegible] symptoms and signs of oxygen poisoning under our (less [illegible] than [illegible]) were identified by Donald (1947) from [illegible] of 88 dives which were terminated because of the [illegible] of the lips 60.6 per cent convulsions 9.2 per cent [illegible] 8.5 per cent [illegible] 8.3 per cent respiratory disturbances 3.8 per cent twitching [illegible] the lips 3.2 per cent confusion [illegible] numbness 3.2 per cent [illegible] disturbances 1 per cent and acoustic hallucinations 0.6 per cent.

Causative Mechanism. The mechanism by which high oxygen tension caused these symptoms is [illegible]. The possibility that insulin contributes might be due to the accelerated release of acetylcholine in the central nervous system had been suggested by Feldberg (1943) and experiments to show if this might be the explanation of oxygen convulsions were carried out by Brown, Feldberg and Dickens at Hampstead (1944). They found no significant difference between the relative acetylcholine contents of samples of fresh guinea pigs' and rats' brains incubated at pressures 1.4 to 5 atmospheres for ninety minutes in air and oxygen respectively, and assumed that high pressure oxygen had no effect on the synthesis or release of acetylcholine in tissue slices. They

did not exclude the possibility [illegible] might be associated [illegible]

In a long series [illegible] pressure oxygen on [illegible] irreversibly poisoned and [illegible] exposure, even at [illegible] any protective effect [illegible] partial pressure of oxygen [illegible] spheres was certainly [illegible]

High pressure oxygen [illegible] brain to oxidize glucose [illegible] ability to form brain [illegible] narcotics and relaxing [illegible] course of oxygen poisoning. [illegible] the rate of respiration [illegible] salts of manganese, cobalt [illegible] in that order of efficiency. [illegible] and pyruvate by brain tissue. [illegible] Neither would restore normal [illegible] concerned in the carbohydrate [illegible] poisoned by oxygen [illegible] phate dehydrogenase and [illegible]

In association with the [illegible] oxygen poisoning in [illegible] more sensitive to this toxicity [illegible] convulsions is is found by [illegible] depth of a dive and [illegible] the percentage of carbon dioxide [illegible] findings he observed that [illegible] retarding the onset of oxygen [illegible] found to have the opposite effect [illegible] and barbiturates had an other [illegible] in mice. Brown and his colleagues [illegible] and their future conclusions are

> "There is an indication that [illegible] by exhaustion of bromide or phenobarbital. [illegible] confusing results and [illegible] large groups of subjects. [illegible] drugs is further complicated by [illegible] the prevention of convulsions and swimming [illegible] in rats."

Experiments on this [illegible] the Royal Naval Physiological Laboratory by Taylor (1943a, 1943b) [illegible] Dickens observed [illegible] effect of breathing pure [illegible] atmosphere. These animals [illegible] at a total atmospheric pressure of [illegible] pure oxygen. The [illegible]

[illegible] is followed with a steady [illegible] and a progressive rise in [illegible] carbon dioxide concentration [illegible] continued death occurred even in the absence [illegible] Intermittent exposure of the cats to 100 per cent oxygen [illegible] protected subsequent protection against the poisonous [illegible] The degree of adaptation was not permanent but persisted [illegible] The protective effect of intermittent exposure to oxygen [illegible] also been observed in man at the Admiralty Experimental Dive [illegible] 1945 (R.N.P. 43/39).

The most striking difference between [illegible] oxygen continuously and intermittently is that the former [illegible] rise in tissue carbon dioxide tension. The latter did not [illegible] and therefore that some of the manifestations of oxygen poisoning [illegible] from carbon dioxide retention. In a second paper (Lorke [illegible] 1949) he informed rather reports that breathing carbon dioxide in [illegible] mixtures with oxygen reduced the time of exposure before the onset of convulsions produced that the cat subjected in the conditions had a minimal convulsion time of more than 10 to 15 minutes. The convulsion time of cats could also be decreased by increasing the oxygen pressure. Haldane (1944) confirmed this in man breathing increased tensions of carbon dioxide hastened the onset of the convulsive symptoms of oxygen poisoning and with Kidman (1944) he supported the statement of Behnke, Forbes and Motley (1936) that the visual field is contracted when a man breathes oxygen at high pressures.

Donald (1947) concluded from his human experiments that accumulation of carbon dioxide in the tissues was not the essential cause of oxygen convulsions and the workers at Hampstead accepted convulsions as a sign of poisoning of the cerebral cortex, although Bean and Rantschler (1937) had already produced convulsions in decorticated dogs breathing oxygen at pressures of 3 to 5 atmospheres. Whilst Dickens had proved conclusively that certain human enzyme systems were inactivated by high pressure oxygen, Now Tirbo demonstrated in cats that the carbon dioxide tension in the tissues was increased in oxygen intoxication, and that when these animals were partially immunized to oxygen poisoning by intermittent exposure this carbon dioxide accumulation did not occur. Brown and his co-workers thought that poisoning by high pressure oxygen "at all levels of the central nervous system—muscle apparatus at about equal rates" would provide the most acceptable explanation of the symptoms. The exact mechanism of the poisoning had still to be discovered.[1]

The position at the end of the war could thus be summed up as follows: If man and warm-blooded animals breathe oxygen under pressure they will suffer from oxygen intoxication. The onset of symptoms is hastened by breathing oxygen under water rather than in air. It may be accelerated by heavy work, by breathing air containing high partial pressures of carbon dioxide either as a preliminary to donning an oxygen mask or as a contaminant of the respired mixture, and by increasing the partial pressure of oxygen inhaled. It may be delayed by taking certain anticonvulsant drugs. The

[illegible]

Shallow-Water Blackout

A number of incidents [illegible] different patterns of oxygen [illegible] at depths of 25 feet or less [illegible] were training became unusually [illegible] Some reported mental anxiety [illegible] injury difficulties but the [illegible] They were generally [illegible] unconsciousness after training [illegible] and the only common sequel [illegible] drum in hour.

The consensus of the [illegible] Experimental Diving Unit and [illegible] Research by Dr. I. C. McIntosh and Mr. H. B. Barlow (1944) in [illegible] with Surgeon Lieutenant Commander H. M. Balfour, R.N.V.R. the medical officer of one of the training units. It was considered unlikely that the [illegible] were due to pulmonary disturbances and it was suggested that they were caused by changes in the blood gases. The clinical picture was [illegible] oxygen lack. It was unlikely that the oxygen tension of the inspired air could have fallen to a dangerous level and some men reported to suffering even before they commenced to breathe, at which time the partial pressure of oxygen still further if oxygen was [illegible]. Oxygen intoxication was eliminated by the absence of convulsions, the pink coloring and the shallow depths at which the incidents happened. Carbon dioxide intoxication (acapnia) due to carbon breathing was unlikely in the circumstances described.

The possibility that carbon dioxide intoxication was the causative factor was examined, including the reproducing the conditions in the Experiment. Rebreathing from a bag from a Douglas bag with the absorption of carbon dioxide caused dizziness, [illegible] consciousness, impairment of vision and hearing and eventual unconsciousness but without notable respiratory distress. Rebreathing the same volume of air under the same conditions without the widely recognised acute respiratory distress and increased the respiratory minute

[illegible]

[illegible] When [illegible] through [illegible] space [illegible] reported [illegible] divers [illegible] completely [illegible] more to [illegible] month [illegible]

[illegible] without [illegible] and the [illegible] Heck [illegible] among [illegible] Iron [illegible] were [illegible]

[illegible] the effect [illegible] sets which [illegible] of the different [illegible] American and French Navy [illegible] The [illegible] pressures [illegible] under the [illegible] Chemical Defence [illegible] Porton [illegible] calling them [illegible] they [illegible] large [illegible] The [illegible] Ferrous [illegible] final [illegible] made [illegible] were [illegible]

[illegible] Medical Research [illegible] presents [illegible] Statement [illegible] and at the end of the second [illegible] Here

[illegible]

Submarine [illegible]

[illegible] Many [illegible] eighteen [illegible] [illegible] [illegible]

spheres for prolonged periods and may lead to [illegible] conditions which might embarrass an unacclimatized [illegible] or troops taking passage.

Considerable attention was accorded by both sides during the war to the provision of efficient equipment for maintaining the [illegible] content of the air in submerged submarines and removing excessive amounts of carbon dioxide from it and also in the development of indicators for showing the chemical state of the atmosphere at any given time.

The Schnorchel fitted Submarine

The ways in which these problems were solved cannot be discussed in any detail for they are still of considerable operational importance but I would like to refer to a novel environmental factor which were investigated (Ellis 1949) after the war ended during the first prolonged submerged period by a British submarine fitted with the schnorchel (or Brush Snort) — a hollow mast which communicated between the interior of a submerged submarine and the surface and contained a pipe through which supplies of air for the engines and the crew were provided and another for conveying exhaust gases to be expelled just below the surface.

This device was invented first by the Netherlands Navy before the 1939-45 War. Their submarines were fitted with hollow extensible masts which could be raised when they were submerged a periscope depth to permit a fresh air supply to the interior so that the diesel engines could be used to charge the batteries which provide the motive power for submarines when below periscope depth. The Germans copied this idea after they overrated Holland and captured submarines of the Netherlands Navy. They developed it further so that it became possible not only to charge the batteries with an running, with the surface or periscope depth, the main engines, useful speeds which still submerged, thus increasing greatly the operational efficiency of the craft. An additional advantage of the schnorchel was that the crew could be supplied with fresh air [illegible] the time it was in use and the pressure [illegible] serious oxygen lack or [illegible] such accumulation towards the end of a long dive, were less likely to occur. Turbulence was also practically eliminated, the cold and draughty conditions formerly experienced by the crews of submarines when patrolling on the surface and enabled the men to smoke when the submarine was submerged.

The heavy demands of the diesels for air and the resistance of the relatively narrow schnorchel pipe through which the air was drawn resulted however in reduction of the atmospheric pressure within the submarine which varied in [illegible] with the revolutions per minute registered by the engines whether the latter were being used to propel the submarine or to charge the batteries. An alarm mechanism was introduced by a float valve fitted to the top of the schnorchel mast which closed off the airway into the submarine automatically if the schnorchel head was suddenly submerged either by rough seas or by [illegible] depth keeping. Sudden exclusion of the fresh air supply in this way while the engines were running led to a very rapid reduction of pressure within

the submarine. [illegible] enabled either by stopping [illegible] the re-establishment of [illegible] supply through the schnorkel [illegible] regained its current depth [illegible] schnorkel head emerged [illegible] the engine reopened.

Thus although the use of the schnorkel introduced [illegible] water life in several ways it introduced a number of new problems. [illegible] of these was simple hoarding of the atmospheric pressure [illegible] submarine proceeded on the main engines, especially in [illegible] hazard here was simple oxygen lack and the movement [illegible] at high speeds might degrees of anoxia equivalent to [illegible] by an aircraft pilot flying at a height of 7,000 or 8,000 feet [illegible] for many hours on end. This mild anoxia was increased [illegible] level at times when small amounts of carbon monoxide [illegible] owing to sudden engine stoppages or when the exhaust [illegible] through the schnorkel induction pipe with a following [illegible] effect was experienced in rough weather, more particularly [illegible] highly trained, and consisted simply of sustained [illegible] moderate degree as the air induction pipe was partially [illegible] fluctuations of the float valve or by sea water. This [illegible] to have a tiring effect on the crew. The most dramatic result [illegible] the severe pressure fluctuations caused when the submarine [illegible] submerged for a short time with the main engines running. [illegible] decrease and when the air supply was re-established [illegible] these occasions frequently corresponded in degree with the change [illegible] aircraft operating at a height of 7,000 or 8,000 feet from their ground [illegible] descending again within two or three minutes or less. The crew [illegible] experience the well known symptoms of mild bends, or more with discomfort [illegible] possibly some pain in the air containing sinuses of the skull and [illegible] with carious teeth and exposed pulp cavities might suffer severe [illegible] pain.

The physiological problems were, however, relatively simple [illegible] mechanical factor was accurately assessed and the effects [illegible] were carefully observed, and as with the diving problems [illegible] were largely dominated by careful training of crews and [illegible] mechanical design.

Submarine Escape

The attention caused in the problem of escaping from [illegible] after the recent tragic loss in home waters of H.M. Submarine [illegible] prompts a very brief review of the escape organization used during [illegible].

When a submarine is struck with an error in partially or more half [illegible] survivors there is always an optimum time for escaping. This [illegible] remaining, there is satisfied that she cannot rise surfacing the [illegible] slender and before weakness and loss of judgment due [illegible] oxygen lack and carbon dioxide excess reach the crew [illegible]

[illegible] Appendix (DSI_A) [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

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COMPARISONS OF THE NAVAL, MILITARY, R.A.F. AND CIVIL MEDICAL SERVICES WITH PRIVATE PRACTICE

PART VI

BY

Surgeon Captain R. C. MUNDAY, C.B., M.R.C.S., L.R.C.P., R.N. (Rtd.)

On arrival at Hong Kong my four S.P. cases were reduced to one. He was so keen on his job that he was for ever trying to induce me to live a life of ease and dignity and let him do all the work except repairing the sick to the Captain. I could sympathize with him, for I also was starting for clinical experience and needed all I could get.

We were soon ordered back to Singapore, time to which might be thought profitably to get a view of the huge Russian fleet which was on its way out to reinforce the fleet so crippled by the sudden attack on Port Arthur and the unprepared Russian ships by the Japanese before they had declared war. Sure enough I looked from my top on the quarter deck at 5 o'clock one morning to see on the far horizon to the north-west cloud of smoke and to watch the Russians

approaching in our starboard beam first in line the cruiser cruiser [illegible] destroyers on their beam followed by the battleships and astern of them the repair and supply ships

We signalled asking if it was desired that we should give the usual [illegible] salute the reply was No thank you perhaps later Rozdestvensky the [illegible] and gifted Admiral was no doubt taking no chances as in our manœuvres he detached a cruiser to steam close under our stern with guns run [illegible] manned and ammunition ready on deck but whether by gross neglect [illegible] reassure us the rampions had not been removed All this could be easily [illegible] with the naked eye so close did the Russians come under our stern It will be remembered that they had made the mistake of firing on and sinking [illegible] of our fishing boats in the North Sea One could not be quite sure they would not make another mistake He could have been sunk without price if the Russian battle fleet had opened fire on us out of range of our guns No [illegible] can deny that Rozdestvensky was both brave and competent brave in bringing his fleet from the Baltic which he knew to be ill-found to meet the [illegible] Japanese fleet in their own waters and competent because he accomplished the long voyage in spite of tremendous difficulties fully related in the diary of his naval constructor who daily described the shortcomings of his battleships officers I heard from the lips of two American naval medical officers stationed in the Philippines that when our Russian cruisers which escaped from the battle of Tushima arrived there all the wounded had maggots in their wounds and that all the Russian surgeons although unwounded themselves appeared to have done little or no work after the battle in their utter demoralization from the horrors they had experienced

We coaled ship at Singapore and I had arranged to have a day's golf in the country leaving my mate to attend to any accidents on board I had gone to my bunk feeling quite fit the night before but on rising in the morning I was convinced that I had appendicitis and broke the news to my opponent the Captain of Marines who was so disappointed at being let down that I felt I must see what I could do to give him a game We bicycled five miles but pain referred to the appendix persisted I played very badly and vomited more than once on the two rounds we completed in a temperature between 80 and 85° in the shade We biked back to the club tell there I made my diagnosis for I passed coffee-coloured urine this reminded me that I had the same thing when six years of age on one occasion only Then it was the only symptom and I regarded it as an entirely of a minor nature although so unusual that it was never quite forgotten Now I was convinced that I had a renal calculus Pain on movement became worse and I went on the sick list The Captain was full of sympathy and made me comfortable in his stern [illegible] In day until we returned to Hong Kong when I went into hospital here the diagnosis was concurred in but I have no recollection of any X-ray examination I received medical treatment only as the Surgeon Captain although a competent operator considered that the operation would stand a better chance of success in a more temperate climate I am sure he was right here as the month was August and Hong Kong was like a boiling cauldron and my

[illegible]

[illegible]

[illegible] Although the only noticeable effect of this ordeal while I [illegible] of Hong Kong was an increased perspiration yet [illegible] my voyage home on the Pacific [illegible] interested and appeared to be [illegible] of which it was very full [illegible] especially during the first stay the steamer made at [illegible] in the shade. I suffered great agony [illegible] but I made such progress [illegible] that I was able to land and [illegible] Vancouver Island before crossing Canada by the [illegible] and sailing to Liverpool from Quebec.

[illegible] from Plymouth to meet me that I believed I had passed the time on the [illegible] and was quite fit. Next morning I reported myself to the Medical Director General. I looked so well and said I was so well that the Deputy Director General who examined me actually suspected me of malingering to get home from a foreign station. He reminded me that this was the second time I had been invalided from China and arrived in England quite fit. I pointed out that I had begged the Surgeon Captain at Hong Kong not invalid me home as I feared that I might be suspected but he had insisted on sending me home. I was now told to report myself to Haslar for observation forthwith but I asked and obtained permission to see Dr. Mackenzie Davidson first to try and get that great radiologist to X-ray my right kidney and urinary. Fortunately he was able to demonstrate a clear picture of a small stone in the kidney. He said that the flushing of the kidney with distilled water had caused the ulceration to heal and that the stone must now be unpolished and temporarily innocuous. He advised postponement of surgical treatment unless and until symptoms returned. I reported again at the Admiralty but this was a Saturday and an afternoon off for the Director General. My case could not be dealt with until Monday. Meantime I spent Sunday afternoon making calls on friends by bus. Buses and roads of those days were not as smooth running as they are now and I was so severely jolted

[illegible]

Sister Agnes [illegible] Miss X. Cuser [illegible] the Royal Earlsfield [illegible] Hospital [illegible] Wes[illegible] [illegible]

Sister Agnes [illegible]

[illegible] Sister Agnes [illegible] Sister Agnes [illegible]

My general health [illegible] and I became [illegible]

[illegible] Life. I [illegible] applied [illegible] O. [illegible] [illegible] for myself and my wife. He [illegible] by [illegible] Southampton [illegible] painful physically but more in [illegible] [illegible] her all the way and when they [illegible] [illegible] for Ryde and I subsided the seasickness and felt [illegible] [illegible] I [illegible] a sense of an appetite for the first time since [illegible] [illegible] a plate of duck peas and potatoes followed by [illegible] [illegible] I was put to bed I had a temperature of 102° [illegible] From that moment I never looked back and [illegible] that plentiful supply of cream. I spent most of [illegible] shelter but towards the end of December I was [illegible] grounds.

I [illegible] with a renal sinus which needed only a small dressing. I [illegible] from three months on the sick list and was surveyed in the [illegible] until my sinus was healed. To this end I was [illegible] Naval Hospital where the kind and clever Surgeon Captain Kelly [illegible] I would like him to do. I asked that the sinus should be [illegible] kidney in the skin and packed. This was done so skilfully that in [illegible] I was discharged in order to go and stay on Dartmoor with my wife. So well did the nurse me and so good was the food and the Dartmoor [illegible] country house that in a few weeks I was able to play golf on [illegible] hole course in the adjoining fields. One memorable day in March [illegible] months after my operation and three months after my [illegible] my wife found that she could no longer get packing into the sinus [illegible] discharge. With the aid of a mirror I got a good view of the [illegible] and satisfied myself that it was healed. I wired to the Admiralty [illegible] my old fit for duty and received orders to attend R.N. Hospital [illegible] I [illegible] at once. I planned as it was a fine day to walk the first [illegible] to the nearest station at Princetown and take a train to Plymouth [illegible] Princetown I found I was one and a half hours too early for [illegible] I decided to walk another five miles to the next station. In the end I [illegible] 25 miles into Plymouth, had a good lunch and reported myself at the Hospital. The Surgeon Captain asked how I had done the journey and [illegible] I had walked it he never even looked at the scar but reported [illegible]

(To be continued)

Clinical Notes and Cases

A CASE OF GIANT HYPERTROPHIC GASTRITIS

By

Surgeon Commander H. L. CLEAVE, R.N.

R. H. P. 1 B. aged 39.—Patient admitted on 1.4.50 for investigation of dyspepsia.

History of Previous Illness.—For about three weeks patient had had a gnawing epigastric pain and occasional vomiting. The pain arose about half an hour after meals and it lasted from two hours up to a day. Further food made it worse but it was relieved by vomiting. No history of haematemesis or melaena. He had lost 9 lb. in the last year.

Previous History.—No previous history of indigestion. No known precipitating factor. No previous serious illness nor any operation.

Family History.—Nil relevant.

Habits.—Smokes 10 to 12 cigarettes daily. Alcohol. Very moderate. He was ascertained with particular care. Until the present attack patient had always eaten well and enjoyed his food.

On Examination.—Patient looks rather old for his age. Teeth. Complete dentures. C.V.S. Respiratory System and Central Nervous System. Nil abnormal detected. Abdomen. He was slightly tender on deep palpation in the epigastrium, no rigidity and no guarding.

17.1.50. *Verbal Report of Barium Meal.* There is no ulcer. The pylorus. There is also evidence of very marked gastric stasis.

17.1.50. Lab. Report of blood and stools. Negative.

Lab. Report No. H/199/50.

R.B.C.	4,820,000	Polymorphs	[illegible]
W.B.C.	8,600	Lymphocytes	[illegible]
Haemoglobin	105 per cent	Basophils	
C.I.	1.09	Eosinophils	[illegible]
		Monocytes	[illegible]

Lab. Report of the E.T.M. Summary. Appearances suggestive of a duodenal ulcer though on the high side.

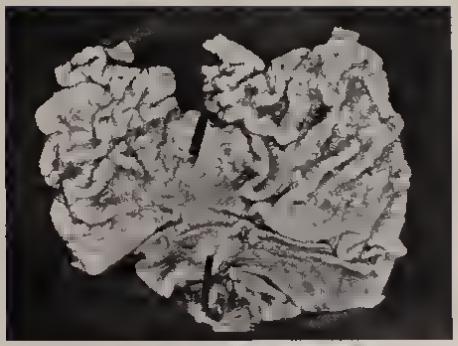
A week after admission patient complained of a sudden bilious attack lasting in spite of being on a very strict diet.

During the next six weeks the patient continued to get epigastric pain from time to time on a very simple diet and the usual Milk diet in hospital.

[illegible]

[illegible]

[illegible]



[illegible]

[illegible]

A deep ulcer in the liver [illegible]

History — [illegible] though the [illegible] the liver [illegible] the [illegible] ulcer [illegible] by [illegible] tissue.

Symptoms — [illegible] the [illegible] the [illegible] the

SUMMARY

[illegible] well described in the [illegible] by [illegible] Wood

[illegible] condition [illegible] missed

The symptoms and [illegible] curable but may be slight

Radiologically the [illegible] has to be distinguished from diffuse polyposis or adenomatosis of the stomach or where it is localized from cancer

Gastroscopically the differentiation lies between chronic hypertrophic gastritis and true giant hypertrophic gastritis

This disease may be histrized or as in this case widespread It does not appear to be associated with or followed by atrophic gastritis as does the ordinary chronic hypertrophic gastritis

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A CASE OF OPTIC ATROPHY FOLLOWING THE DRINKING OF METHYL ALCOHOL

BY

Surgeon Commander J B PATRICK R N

ON Friday 17th February 1950 A B had a common cold and by Monday 20th February the cold was worse and he felt miserable In the evening in the mess of his duties he was making up some Leishman's stain and when doing this he took two ounces of the methyl alcohol added orange juice and water put it in a jug and drank the lot

The treatment for his cold did not include quinine in any form

On Wednesday 22nd February 1950 about midday he looked out of the porthole and remarked that as the day was misty there would be no flying This interested some medical officers as the day was in fact clear In the evening his sight was better

On Thursday 23rd February 1950 his sight became blurred and on Friday 24th February his sight became worse so that by evening he was blind He was admitted to Royal Naval Hospital Haslar the same evening

He denied having drunk the methyl alcohol up to Friday 24th February but on that day being closely questioned by his Senior Medical Officer he admitted that he had drunk the methyl alcohol four days previously

25 2 50 The eyes were externally normal The eye movements were normal and the pupils were about equal half dilated and round There was a reaction to light or convergence the vision was nil He could not tell strong light from darkness

Fundi The discs were within normal limits and the maculae were normal Surrounding the discs and extending out for about one disc diameter all round there were zones in which the retina showed a grey colour suggestive of œdema

In these zones the [illegible]

[illegible]

[illegible]

[illegible] 60 [illegible] fundus. He could see [illegible]

21 2 50 Eyes externally normal

Pupils Half dilated and fixed No [illegible]

Vision Nil

Fundi The œdematous zones round [illegible] 28 2 50 The fundi were otherwise normal

1 3 50 *Pupils* (Right) No appreciable response [illegible] of light but in the continued presence of light slight [illegible] (Left) No appreciable response on the application of light [illegible] presence of light

Fundi (Right) The zone round the disc is [illegible] gestive of œdema of the retina. Slight blurring [illegible] the disc was present this had not been present before [illegible] fundus was normal (Left) The zone of œdema round the [illegible] and the rest of the fundus was normal

Vision Nil Could not tell light from darkness

5 3 50 *Pupils* The same as on 3 3 50

Fundi The grey œdematous zones round the [illegible] and the fundi were within normal limits The [illegible] become a little paler than the right

Vision Nil Still blind

8 3 50 *Pupils* About half dilated the right [illegible] the left Tested with 100 watt lamp at 18 inches [illegible]

Fundi Both discs were slightly paler than [illegible] been a week previously of the two the left was the paler [illegible] still within the normal limits a marked sheen was [illegible] there was no visible departure from the normal limit

Vision Nil Still blind

10 3 50 *Pupils* About half dilated Right slightly [illegible] left No response was obtained with 100 watt lamp at 18 inches

Fundi The left disc was paler than the right [illegible] still within normal limits The rest of the fundus was normal

Vision Nil Still blind

13 3 50 *Pupils* About half dilated the right was [illegible] than the left Tested with 100 watt lamp at 18 inches left [illegible] on the application of light The pupils contracted [illegible] and then dilated again and showed hippus in the [illegible]

Fundi Within normal limits the left disc [illegible] paler than the right No appreciable change

Vision This showed a definite improvement [illegible] still

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Pupil. [illegible] Right [illegible] tion and slight [illegible] very slight [illegible] the presence [illegible]

Concerning [illegible] tion of the left pupil [illegible] in the right pupil.

Fundi. Right: the disc [illegible] on the temporal side. The [illegible] the disc, the upper nasal [illegible] macular region was normal. Left: the [illegible] especially on the temporal side. The [illegible] both showed definite variation [illegible] the macular region was normal. On [illegible] pressure on the veins at the crossing.

Vision. Right: in the dark [illegible] in the upper visual field but [illegible] light from darkness in any part. Left: [illegible]

Subsequently

Four days after drinking, [illegible] tances of urinary pus [illegible] pupils. The fundi were [illegible] there was redness of the retina. [illegible] light had almost fully returned [illegible] weeks after drinking the [illegible] the left eye was blind [illegible]

Critical Physical Condition. [illegible] was slight enlargement [illegible] palpitation. This gradually [illegible] was normal. There was [illegible] the physical condition [illegible]

In view of the history [illegible] the pathologist. All the [illegible]

3.3.80 and 17.3.80. Serum [illegible]

Alkaline phosphatase

3.3.80. Urinary [illegible]

1.5.80. Serum [illegible]

7.5.80. W.R. and P.E.R. [illegible]

Methyl alcohol poisoning w[illegible] the period of prohibition. The [illegible] kind of bootleg soft drink. The results [illegible] drinks taken, but in general the effect [illegible] when the poison was swallowed.

Zeigler [1] states that one [illegible] blindness and that one cured [illegible] the result of inhalation of [illegible]

[illegible] [2] reported the case [illegible] of a large [illegible] the shelf [illegible] and the third bottom [illegible]

[illegible] way in which methyl [illegible] skin [illegible] of luminous [illegible] as luminous.

[illegible] is due to poisoning [illegible] degeneration [illegible] the optic nerve.

Diagnosis. Very guarded in [illegible] the [illegible]

Treatment.—Methyl [illegible] changed [illegible] impurities in the [illegible] Methyl [illegible] slowly so that [illegible] days much of the poison [illegible] Zeigler.

Sodium bicarbonate solution should be given [illegible] the patient is not more than 700 [illegible] per [illegible] commonly.

[illegible] to the retina, [illegible] kept [illegible] Rest in bed [illegible] elimination [illegible]

[illegible] Surgeon Lieut. Commander [illegible] RN [illegible] medical officer [illegible] to Surgeon Commander [illegible] RN [illegible] examinations.

[illegible] Surgeon Rear Admiral [illegible] for [illegible]

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[illegible] *Ophthalmic Society*, 1917, 14, [illegible]

THE KLIPPEL-FEIL SYNDROME

BY

Surgeon Lieutenant P. D. G. PUGH, R.N.

CONGENITAL abnormalities of the neck fall into six broad groups (A[illegible]):

(1) Short neck.
(2) Torticollis.
(3) Cervical rib and related brachial plexus syndrome.
(4) Branchial cyst and fistula.
(5) Thyroglossal cyst and fistula.
(6) Sequestration dermoid.

A case of short neck has recently been seen at the Royal Naval Hospital, Haslar. The patient, Hospital Assistant, would seem worthy of record.

Short neck is usually presents in one of three conditions:

(1) Pterygium colli, in which the webbed skin usually [illegible] from mastoid process to acromion. Bilateral involvement is [illegible].

(2) Wryneck, resulting from congenital shortening of the sternomastoid muscle, leading to a tilt of the head towards the affected side. The neck is also restricted.

(3) Klippel-Feil syndrome, in which a variety of signs are [illegible]. These are: (a) Shortness of the neck; (b) Marked [illegible] of movement of the head; (c) Lowering of the hairline (Klippel and Feil, 1912; Lavelle, 1939; Mercer, 1936; Clemmesen, 1936).

Turner has described a most unusual syndrome of [illegible] associated with unilateral [illegible] of the [illegible] and amenorrhœa.

Klippel and Feil (1912) collected an [illegible] series. Since [illegible] authors have published records of similar cases. [illegible] the rarity of the condition, it is thought [illegible] is the original [illegible] series.

CASE HISTORY

The patient, an Able Seaman, aged 19, gave a history [illegible] ing any other member of his family. He noticed that his [illegible] ago when he [illegible] an accident in which he slipped [illegible] injured his neck [illegible] the shoulder [illegible].

Since then he has [illegible] the right shoulder [illegible] and that his head has [illegible] to fall forwards [illegible] with a jerk. There has been no pain in the neck. The [illegible] are as follows:

(1) The neck is the least [illegible] in appearance [illegible] [illegible]

(2) [illegible] to the left. All other movements are full and [illegible].

(3) The hairline [illegible].

(4) The right shoulder is high [illegible] the trapezius [illegible].

[illegible] the cervical [illegible] left arm is better [illegible]

[illegible] been found

[illegible] patient with such [illegible] under [illegible] 1919 it would appear [illegible] the rule [illegible] syndrome. Lavell [illegible] (1934) [illegible] have been described [illegible] adolescent.

[illegible] genital abnormalities [illegible] (1936) [illegible] Spiegel's deformity [illegible] patient [illegible] the [illegible] accompanied the [illegible] distribution [illegible] the [illegible] only [illegible] the [illegible] level.

[illegible] with an [illegible] of the [illegible] left [illegible] vertebral [illegible] been described.

[illegible] particularly [illegible] the upper [illegible] Neuralgia [illegible] has also been reported. In the [illegible] difficulty in breathing, swallowing and of shortness of [illegible] (1940).

[illegible] examination of these cases invariably shows an extensive [illegible] of the [illegible] man. In the patient the photos show (1) A gross [illegible] the left and [illegible] compensatory scoliosis of the upper dorsal [illegible] the right [illegible] which [illegible] (2) A [illegible]

Fig. 1. [illegible]

Fig. 2. [illegible]

[illegible]

FIGS. 3 and 4—A.P. and lateral X-rays [illegible] vertebral malformation.

Other reported cases usually show [illegible] more or occasionally all the cervical vertebrae in [illegible] or lesser degrees of abnormalities rather similar to those shown by [illegible].

The aetiology of this condition is debatable. Mercer (1936) considers the condition to be due to irregular segmentation of the spine in the early weeks of foetal life if the embryo is subjected to any noxious influence, but that this is not the only factor is shown by the frequency with which two or more members of the same family suffer from the deformity.

The importance of recognizing the condition lies not so much in the treatment as in the differential diagnosis from other conditions such as Pott's disease and torticollis which are incurable by surgical therapy. There is of course no treatment for the case. Gillies however has described a case upon whom he has performed a plastic operation with considerable improvement in the appearance of the patient.

I wish to record my thanks to Surgeon Rear Admiral F. G. Hunt, *CBE*, MB, BCh. for his kindness in allowing me to publish this case.

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[illegible] Radiologie Dangers

A CASE OF KALA-AZAR

BY

Surgeon Commander B S LEWIS, R N

CASE HISTORY

[illegible] *ad* 22.

[illegible] on 2nd January 1930 [illegible] and pain for the past short [illegible] increasing. He [illegible] been failing for the past month [illegible]

He could speak [illegible] English and [illegible] detail [illegible] The only past history [illegible] appeared [illegible] effort [illegible]

He [illegible] Chittagong [illegible] month before [illegible]

[illegible]

O [illegible] —Th[illegible]

[illegible] standing, [illegible]

plus [illegible]

[illegible]

[illegible] (5) Hodgkin's D[illegible] (6) N[illegible]

The following [illegible]

Blood-count Whi[illegible]

48 per cent [illegible]

6 [illegible] cell in urine [illegible]

Mycologia [illegible] liver [illegible]

about [illegible] The [illegible] high proportion [illegible] N[illegible]

[illegible]

Urine —N A D

Blood Urea 34 [illegible]

E S R —25 mm [illegible] No par[illegible]

Stools —N A D

X Ray of Chest —N A D

Straight X ray of Abdomen [illegible] There is a large [illegible] left hypochondrium The left kidney outline is [illegible] This mass is almost certainly [illegible] the spleen

Immunological Test —Positive

Serum Complete [illegible]

Weight —110 lb

In view of the general probability of this being [illegible] L K [illegible] positive [illegible] the [illegible] (this [illegible] for fourteen days [illegible]

He responded [illegible] between 9[illegible] and 104 [illegible] antimonials [illegible] all signs the size of the spleen [illegible]

He was discharged [illegible] after being up [illegible]

His blood [illegible] pressure [illegible] without [illegible] for *Leishmania donovani* [illegible]

A further seven cases of kala-azar [illegible] recent and other side effects despite [illegible]

My thanks are due to Surgeon R[illegible] M[illegible] C[illegible] the case

Reviews

The Four Pillars of Wisdom By Shri [illegible] Delhi 1940 [illegible] Wells & Co Price R[illegible]

This book [illegible] right [illegible] the [illegible] the four Pillars of Wisdom [illegible]

[illegible] (1) [illegible] language [illegible] W[illegible] [illegible] age clear [illegible] [illegible]

2) Pavel [illegible] [illegible] became [illegible] [illegible] for our [illegible] prejudi[illegible] [illegible] ple

(3) Stra[illegible] [illegible] keep [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

(4) Lang[illegible] [illegible] [illegible] [illegible] [illegible] [

[illegible] 1 200 or [illegible] of infection [illegible] and the [illegible] Surgery [illegible] specialists [illegible]

As in previous [illegible] Pathologist [illegible] malaria [illegible] of this chapter [illegible] used in the diagnosis of these conditions.

The book which [illegible] creditably [illegible] thoroughly recommended not only [illegible] wishes to keep abreast of bacteriology.

MANSON'S TROPICAL DISEASES. By Sir Philip H. Manson-Bahr [illegible] 1950. Pp. xii + 1136, with 17 [illegible] plates, 9 [illegible] maps and 29 charts. London: Cassell & Co. [illegible]

The appearance of a new edition of such an old [illegible] is always an interesting event. In general format this [illegible] as the twelfth but there are changes in matter [illegible] necessary for anyone practising in or near the tropics [illegible] ten years have been notable for improvements in [illegible] formerly most refractory. As a typical sample of the [illegible] we may mention penicillin for yaws, [illegible] and intramuscular antimony for bilharziasis, chloroquine for malaria, arsenicals for trypanosomiasis [illegible] and vitamins for sprue.

Of almost equal importance are the sections [illegible] disease by DDT and gammexane, as shown by the [illegible] in Cyprus and Sardinia and the reduction [illegible] parts of South Africa.

The illustrations are largely those [illegible] the intestinal protozoa has led to such a great [illegible] the malaria parasite plates have been fully [illegible]

MEDICAL PRACTICE IN DERMATOLOGY. By [illegible] Physician in Charge, Skin Department, St. Mary's Hospital, London. Butterworth. Price £3s.

Another of Butterworth's Medical Practice [illegible] portion of practitioners may apply this to [illegible] With little one distinguishes [illegible] reference book in Dermatology than implied [illegible] the whole majority into the patient [illegible] tion of diagnosis in skin affections.

In general dermatological practice [illegible] infections are the commonest skin [illegible] treating these complaints. Full [illegible] ment of the fungus infections [illegible] adolescent.

Of the latest [illegible] be given. But in the Medical Practice [illegible] from book to book.

MEDICAL TREATMENT. YEAR BOOK. [illegible] P.R.C.S., etc. 1951. Pp. xx + 35[illegible] Price 17s. 6d.

It is a pleasure to review this [illegible] to standard in its 1951 edition. As usual [illegible]

[illegible] pu[illegible] as Bl[illegible] Medical [illegible] Assura of Effort [illegible] Medical [illegible] Medicine

Wh[illegible] it would [illegible] for many, and ds [illegible] Y[illegible] Book [illegible] lish and [illegible]

We [illegible] any doctor in the S[illegible] [illegible] developments and [illegible] methods

N[illegible] (—[illegible] B. A. V. D. [illegible] M.B.E., M.C., L.R.C.P. Junior Director of [illegible] (Institute of Urology) Lecturer [illegible] Diseases to St Charles Hospital [illegible] Royal Navy Physician to the [illegible] the British Society for the Study [illegible] pp 424 167 illustrations 73 in full [illegible] 6d

A [illegible] and from such an authority [illegible]

N[illegible] examples problem have been [illegible] Virus and L[illegible] organism infections [illegible] of the disease produced from studies [illegible]

The [illegible] labour the author has spent to [illegible] methods and a further [illegible] the lists of references very [illegible]

This is [illegible] Urologists bookshelf and Dermatologists [illegible] reading by all Medical Officers

It is very well [illegible] illustrated

We acknowledge with thanks receipt of the following publications

Anales de la Facultad de Medicina Montevideo *Annals of Tropical Medicine and Parasitology*, *Australian Journal of Experimental Biology and Medical Science* *Boletin de Sanidad Militar* *British Journal of Surgery* *British Medical Bulletin* *British Medical Journal* *Bulletin International des Services de Santé* *Bulletin of the World Health Organization* *Chinese Medical Journal* *Chronicle of the World Health Organization* *Clinical Journal* *Guy's Hospital Gazette* *Journal of the Bombay Grant Medical School* *Medicine* *Journal of the California State Dental Association* *Journal of the Medical Association of [illegible]* *Journal of the Royal Army Medical Corps* *Journal of the Royal Naval Scientific Service* *London Hospital Gazette* *Medical Journal of Australia* *Medical Press* *Medicine* *Hospital Journal* *Military Surgeon* *Proceedings of the Staff Meeting of the Mayo Clinic* *Medicine Sanidad* *Sanidad Aeronautica* *St Mary's Hospital Gazette* *St Thomas's Hospital Gazette* *Tropical Diseases Bulletin* *Ulster Medical Journal* *University of Durham Medical Gazette* *United States Armed Forces Medical Journal* *United States Medical Technician Bulletin* *West London Medical Journal* *World Health Organization Technical Report Series*

The Fifth Report of the Nuffield Foundation published by the University Press Oxford

News of the Service

OBITUARY

W[illegible] following deaths are reported [illegible]

S[illegible] A[illegible] K. BUSHE, *O.B.E.*, died in Poole [illegible] Dec[illegible] 1[illegible] 1901 and entered the R.N. Medical S[illegible] in June 1[illegible] He served as Staff Surgeon in Devonport [illegible] months [illegible] Surgeon Captain in 1946 and retired [illegible] December 1[illegible] and promoted to Surgeon Rear-Admiral (Rtd.) in 1[illegible]

During the First World War Surgeon Rear-Admiral Bushe [illegible] Windless Hospital, Stanford Dunham, Warrington and at the R.N. [illegible] Plymouth. During the Second World War he was employed in [illegible] Captain from March 1944 until August 1945 and served as Medical [illegible] R.N. Airfield Hospital Dartmoor.

In June 1919 Surgeon Rear-Admiral Bushe was awarded the *O.B.E.* [illegible] valuable services as Officer in Charge of H.M.W.D. Station Rosyth [illegible]

Surgeon Commander J. R. L. [illegible] R.N. (Rtd.) died [illegible] in July 1889 he published in 1883 and entered the R.N. Medical S[illegible] Surgeon in May 1903. He was promoted to Surgeon Lieutenant Commander, Surgeon Commander in 1921 and was placed on the Retired List [illegible] September 1923.

During the First World War Surgeon Commander [illegible] H.M.S. [illegible] and Nelson [illegible]

Surgeon Captain A. WOOLLCOMBE, R.N. (Rtd.) [illegible] April 13th he passed out in 1897 and entered the R.N. Medical S[illegible] Surgeon in November 1897. He was promoted to Staff Surgeon [illegible] Lieutenant in 1901 and Surgeon Lieutenant Commander [illegible] in January 1924.

During the First World War Surgeon Captain W. [illegible] served in H.M.S. [illegible] Humbert and H.M.S. [illegible]

HONOURS AND AWARDS

Companion of the Bath

Surgeon Rear-Admiral W. J. [illegible] F.R.C.S., F.R.C.P., K.H.S.

Knight of the Order of the British Empire

Surgeon Vice-Admiral C. L. [illegible] C.B., M.D., F.R.B., K.H.P.

Commander of the Order of the British Empire

Mr. O. H. Franklin, *M.B.E.*, F.R.C.S., K.H.S.

Officer of the Order of the British Empire

Surgeon Commander D. D. Wedd

Acting Temporary Surgeon Commander J. H. Marsh

[illegible]

The Medals [illegible] has been awarded to Surgeon Captain S [illegible] R [illegible] M D Sc D [illegible] C B D P H by His Majesty King Faruk I Egypt

Royal Red Cross

[illegible] QARNNS

Associate of the Royal Red Cross

[illegible] M Phillips QARNNS

PROMOTIONS

[illegible] Surgeon Rear Admiral
[illegible] Captain I Mahdi *OBE*

[illegible] Surgeon Captain
[illegible] Commander G Phillips

[illegible] Surgeon Captain (D)
[illegible] Commander (D) R J M Andrews (Act Surgeon Captain (D))

[illegible] Surgeon Commander
[illegible] Surgeon Commanders F W Biskerville P G Burgess J M Fitzpatrick W H C M Hamilton I C MacDonald C J P Pearson W H C W [illegible] Whittington

[illegible] Surgeon Commander (D)
Surgeon Lieutenant Commanders W I N Farrell R A Hilton

[illegible] to Acting Interim Surgeon Commander
Surgeon Lieutenant Commanders P W Edmondson C A St C Hiley

[illegible] to Surgeon Lieutenant Commander
Acting Interim Surgeon Lieutenant Commander G A Binns

[illegible] to Acting Interim Surgeon Lieutenant Commander
Surgeon Lieutenants L G H LeClercq J C Higginson

[illegible] to Acting Interim Surgeon Lieutenant Commander (D)
Surgeon Lieutenant (D) J C Richards

TRANSFERS TO PERMANENT LIST

Surgeon Lieutenant T S Law

ENTERED FOR SHORT SERVICE COMMISSIONS

W H Cochrane MB BCh BAO J A B Jones MB BS MRCS LRCP R C Lemon MRCS LRCP C R May LMSSA M R Merley MB, BS N G [illegible] MB BS D C H Thorne MB BCh

TERMINATION OF EXTENDED SERVICE COMMISSIONS

Acting Interim Surgeon Lieutenant Commander M L Thomson (Acting Surgeon Lieutenant Commander)

RETIREMENTS

Surgeon Rear Admiral O D Brownfield *CB OBE* MB BS MRCS LRCP KHP

Surgeon Commander D R F Bertram *OBE* Surgeon Commander R L Rampling Acting Interim Surgeon Lieutenant Commander M J G Davies Surgeon Lieutenant I J Fraser Surgeon Lieutenant N McL Pirie

Surgeon Lieut [illegible] (D) P V Peatfield Surg [illegible]
(D) K S Jenkins

WARDMASTER OFFICERS

RETIREMENT

Commissioned Wardmaster C H Thompson

ADMIRALTY FLEET ORDERS

2021.—Medical—R N Hospital Port Edgar Closure—Arrangements for Long Term Treatment in Scotland
(M D G 1410/50—7 Jul 1950)

2072—Medical—Cases of Typhoid and Para Typhoid Fever Reports
(M D G 9072/50—7 Jul 1950)
(A F O 4374/42 is cancelled)

2265—Medical Instructions for Naval Aircrew Personnel
(M D G 10623/50—28 Jul 1950)

2460—Pay—Submarine Pay Surveying Pay and Medical and Dental Officer's Specialist Pay—Payments during Periods of Sickness
(C.W N 1306 48—18 Aug 1950)

Notice

[illegible] subjects, [illegible] naval [illegible] foreign [illegible] Articles [illegible]

All [illegible] NAVAL MEDICAL [illegible] unless [illegible] shall [illegible]

The [illegible] 22 [illegible] the date [illegible] Smith (1935) [illegible]

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